

Supplementary File 1

1.1. Methodology Supplementary

The following questions were posed to the chat-bots to obtain their primary diagnosis, differential diagnoses and suggested investigations:

Question 1. [Age, gender and chief complaint] What are your differential diagnoses and which one amongst them is your top diagnosis?

Question 2. [Full history and physical exam findings in the first presenting hospital for current chief complaint] What are your primary diagnosis and differential diagnoses? What investigations will you suggest to ascertain the diagnosis?

Question 3. [All information excluding the investigation results] What are your primary diagnosis and differential diagnoses? What investigations will you suggest to ascertain the diagnosis?

Question 4. [All information] What is your primary diagnosis and differential diagnoses for this patient? What further investigation will you suggest?

Question 5. Please rank your diagnoses in descending order of likelihood.

For GPT-4, questions 1 to 5 were posed. If the patient first presented to the author's hospital for his/her chief complaint, question 2 was omitted. For GPT-3.5, only question 4 and 5 were inputted. Responses from both GPT models were presented in Supplementary Table 1.

1.2. Supplementary Table 1 Summary of GPT Responses As Compared To Clinician Suggestion In NEJM Cases In The Past Five Years

Case	Clinicians' suggestion	GPT-3.5 response (with full work-up given)	GPT-4 response (with CC)	GPT-4 response (acting as first clinician managing the patient)	GPT-4 response (acting as clinician in referred hospital)	GPT-4 response (with full work-up given)	Primary Dx correct?	Final Dx included ?	GPT3.5 score	GPT4 score	Ix able to reach the final Dx?
Cognitive impairment											
1. Case 21-2018: A 61-Year-Old Man with Grandiosity, Impulsivity, and Decreased Sleep ¹	Primary Dx: Post-stroke mania and the frontal lobe syndrome Ix: MRI brain	Primary Dx: Bipolar disorder DDx: Substance-induced mood disorder, underlying neurological condition (remote infarcts, diffuse white-matter disease), hyperthyroidism, schizophrenia/schizoaffective disorder Ix: CBC, TFT, MRI brain, neuropsychological testing, consult psychiatrist	Primary Dx: Bipolar disorder, manic episode DDx: Alcohol-induced mood disorder, substance induced mood disorder, depression with mood-congruent psychotic features, neurodegenerative disease, secondary to medical condition (hyperthyroidism/steroid use)	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Bipolar disorder, manic episode DDx: Alcohol-induced mood disorder, substance induced mood disorder, delirium, depression with mood-congruent psychotic features, neurodegenerative disease, secondary to medical condition (hyperthyroidism/steroid use) Ix: CBC/electrolytes/LFT/RFT/TFT urine drug screen, MRI brain, assess alcohol withdrawal, consult	Primary Dx: Bipolar disorder, manic episode DDx: Alcohol-induced mood disorder, substance-induced mood disorder, delirium, depression with psychotic features, neurodegenerative disease, hypomania secondary to medical condition Ix: CBC/electrolyte/LFT/RFT/TFT, urine drug screen, MRI brain, assess	N	N	11 [5 + (3x2)]	9 [5 + 4]	Y

						psychiatry	alcohol withdrawal, consult psychiatrist					
2.	Case 5-2019: A 48-Year-Old Woman with Delusional Thinking and Paresthesia of the Right Hand ²	Primary Dx: Vitamin B12 deficiency, pernicious anemia Ix: Vitamin B12 level	Primary Dx: Schizophrenia DDx: Substance-induced psychosis, delusional disorder, bipolar with psychotic features, Ix: Psychiatric evaluation, neurological evaluation, neuropsychological testing, EEG, MRI Brain, LP	Primary Dx: Carpal tunnel syndrome DDx: Cervical radiculopathy, peripheral neuropathy, thoracic outlet syndrome, vitamin B12 deficiency, DM, ulnar nerve entrapment, cubital tunnel syndrome, MS, anxiety/panic attack	Primary Dx: Conversion disorder DDx: Anxiety/panic attack, delusional disorder, brief psychotic disorder, carpal tunnel syndrome Ix: Psychiatric evaluation, electrolyte/B12 level/TFT, NCV/EMG, MRI brain	Primary Dx: Schizophrenia/schizoaffective disorder DDx: Delusional disorder, brief psychotic disorder, neurocognitive disorder, conversion disorder Ix: Psychiatric evaluation, electrolyte/B12 level/TFT, LP, MRI brain, neuropsychological testing	Primary Dx: Schizophrenia/schizoaffective disorder DDx: Delusional disorder, brief psychotic disorder, neurocognitive disorder, conversion disorder Ix: Psychiatric evaluation, electrolyte/B12 level/TFT, LP, MRI brain, neuropsychological testing	N	N	5 [5]	7 [5 + 2]	Y
3.	Case 32-2019: A 70-Year-Old Woman with Rapidly Progressive Ataxia ³	Primary Dx: Creutzfeldt–Jakob disease Ix: MRI brain, CSF RT-QuIC test	Primary Dx: Paraneoplastic cerebellar degeneration DDx: MSA, Hashimoto's encephalopathy, cerebellar stroke,	Primary Dx: Stroke DDx: Brain tumor, neurodegenerative disease (SCA/MSA), infections (meningitis/enc	Primary Dx: Stroke DDx: Brain tumor, neurodegenerative disease (SCA/MSA), infections (meningitis/enc	Primary Dx: Stroke DDx: Paraneoplastic/autoimmune syndrome, neurodegenerative disease (SCA/MSA), stroke	Primary Dx: Autoimmune cerebellitis DDx: Paraneoplastic cerebellar degeneration, CJD, MSA, vitamin E	N	Y	8 [5 + 3]	15 [5 + 4 + (3x2)]	Y

			vitamin E deficiency	ephalitis/abscess), autoimmune/paraneoplastic syndrome, metabolic (electrolyte/vitamin deficiency/thyroid dysfunction), drugs/toxin	ephalitis/abscess), autoimmune/paraneoplastic syndrome, metabolic (electrolyte/vitamin deficiency/thyroid dysfunction), drugs/toxin	Ix: MRI brain, autoimmune/inflammatory/paraneoplastic markers, LP, whole body scan for malignancy, NCV/EMG	deficiency, toxic/metabolic (heavy metal)					
			Ix: Tumor screening, autoimmune panel, genetic testing, LP, consult neurologist/oncologist				Ix: MRI brain, CSF analysis, EEG, further evaluate malignancy, genetic testing					
					Ix: MRI brain, autoimmune/inflammatory/paraneoplastic markers, vitamin level, LP, genetic testing, NCV/EMG							
4.	Case 35-2020: A 59-Year-Old Woman with Type 1 Diabetes Mellitus and Obtundation ⁴	Primary Dx: Aceruloplasminemia Ix: Gene testing for ceruloplasmin gene	Primary Dx: CJD DDx: Autoimmune encephalitis, metabolic encephalopathy, paraneoplastic syndrome, viral encephalitis Ix: EEG, CSF study, genetic testing for CJD, MRI brain, neuronal autoantibody panel, neoplastic	Primary Dx: Diabetic ketoacidosis DDx: Hyperglycemic hyperosmolar syndrome, stroke, hypoglycemia, sepsis, encephalitis/meningitis, electrolyte disturbance, toxic-metabolic	Primary Dx: Rapid progressive dementia (caused by autoimmune encephalitis/ CJD/ neurodegenerative disorder) DDx: Diabetic ketoacidosis, hyperglycemic hyperosmolar syndrome, stroke, encephalitis/meningitis, paraneoplastic syndrome, toxic-	Primary Dx: Rapid progressive dementia (caused by autoimmune encephalitis/ CJD/ neurodegenerative disorder) DDx: Diabetic ketoacidosis, hyperglycemic hyperosmolar syndrome, stroke, encephalitis/meningitis, paraneoplastic syndrome, toxic-	Primary Dx: Rapid progressive dementia (caused by autoimmune encephalitis/ CJD/ neurodegenerative disorder) DDx: Encephalitis/meningitis (infectious/autoimmune), paraneoplastic syndrome, stroke, toxic-metabolic	N	N	7 [5+2]	10 [5+3+2]	N

			workup	encephalopathy	stroke, encephalitis/meningitis, paraneoplastic syndrome, toxic-metabolic encephalopathy, NPH	metabolic encephalopathy, NPH Ix: CBC/metabolic panel/glucose/ESR/CRP, CT/MRI brain, EEG, neuropsychological testing, paraneoplastic antibody testing	encephalopathy, diabetic ketoacidosis, hyperglycemic hyperosmolar syndrome, NPH Ix: CBC/metabolic panel/glucose/ESR/CRP, CT/MRI brain, EEG, neuropsychological testing, paraneoplastic antibody testing					
5.	Case 10-2021: A 70-Year-Old Man with Depressed Mood, Unsteady Gait, and Urinary Incontinence ⁵	Primary Dx: NPH Ix: LP with CSF drainage	Primary Dx: Parkinson's disease DDx: Vascular parkinsonism, NPH Ix: DaTSCAN scan, LP, genetic testing, neuropsychological testing, consult movement disorder specialist	Primary Dx: Major depressive episode of bipolar disorder DDx: Parkinson's disease, NPH, stroke	Primary Dx: Bipolar depression DDx: Parkinsonism, NPH, stroke Ix: MRI brain, Dopamine transporter imaging, LP, neuropsychological testing	Primary Dx: Bipolar depression DDx: Parkinsonism, NPH, stroke Ix: MRI brain, Dopamine transporter imaging, LP, neuropsychological testing	Primary Dx: Parkinsonism (drug-induced) along with bipolar disorder DDx: Parkinson's disease, NPH, vascular parkinsonism, Lewy bodies dementia, PSP, MSA, Alzheimer with parkinsonism Ix: Medication adjustment,	N	Y	15 [5 + 4 + (3x2)]	18 [5 + 4 + (3x2) + 2 + 1]	Y

							consult movement disorder specialist, LP, DaTSCAN					
6.	Case 19-2021: A 54-Year-Old Man with Irritability, Confusion, and Odd Behaviors ⁶	Primary Dx: Delayed post-hypoxic leukoencephalopathy. Ix: MRI brain	Primary Dx: Alzheimer's disease DDx: Frontotemporal dementia, vascular dementia, Lewy body dementia Ix: MRI brain, TFT/vitamin level, genetic testing, LP	Primary Dx: Neurodegenerative disease (Alzheimer's disease/frontotemporal dementia) DDx: MCI, traumatic brain injury, hypoglycemia/hyponatremia, meningitis/encephalitis, brain tumor, substance abuse, sleep apnea, psychiatric disorders, delirium	Primary Dx: Neurological/psychiatric disorder DDx: Dementia, posterior reversible encephalopathy syndrome related to medications, traumatic brain injury, paraneoplastic syndrome, CNS infection, adjustment disorder, major depressive disorder, bipolar disorder, delirium, metabolic/electrolyte disturbance Ix: CBC/metabolic panel/TFT/B12 and folate level/ESR/CRP/paraneoplastic	Primary Dx: Neurocognitive disorder, possibly secondary to metastasis/structural brain abnormality DDx: Drug side effect, metabolic/electrolyte imbalance, CNS infection, posterior reversible encephalopathy syndrome related to cancer treatment, paraneoplastic limbic encephalitis Ix: MRI brain, EEG, metabolic panel, CSF analysis, paraneoplastic antibody	Primary Dx: Metastatic brain lesion/paraneoplastic syndrome DDx: Delirium, drug side effect, neurodegenerative disease (Alzheimer's disease/frontotemporal dementia), traumatic brain injury, psychiatric illness (depression/anxiety/adjustment disorder) Ix: CT/MRI Brain, CBC/electrolyte/LFT/RFT/TFT, toxicology screening, neuropsychological testing, LP, EEG	N	N	12 [5 + 4 + 3]	14 [5 + 4 + 3 + 2]	Y

					antibody/ toxicology test/ blood culture, MRI brain, neuropsycholog ical testing LP, EEG, consult neurologist and psychiatrist							
7.	Case 20-2021: A 69-Year-Old Man with Ataxia ⁷	Primary Dx: (CANVAS) due to a bi-allelic expansion in RFC1 Ix: Testing of RFC1	Primary Dx: SCA type 3 DDx: Episodic ataxia, MSA, MS Ix: Genetic testing, NCV, neurophysiological assessment (EMG/SSEPs)	Primary Dx: Cerebellar degeneration (alcohol/vitami n deficiency/ paraneoplastic/ hereditary) DDx: MSA, SCA, stroke, NPH, cerebellar tumor, meningitis/ence phalitis	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Did not commit DDx: Cerebellar degeneration (alcohol abuse/vitamin deficiency/paraneop lastic syndromes/ hereditary ataxia), SCA, cerebellar ataxia with sensory neuropathy, gluten ataxia, MSA Ix: MRI brain, vitamin level/autoimmune marker/celiac disease serology, genetic testing, NCV/EMG, trial of gluten-free diet	Primary Dx: Cerebellar ataxia with sensory neuropathy (Friedreich's ataxia, ataxia with vitamin E deficiency, CANVAS, mitochondrial disorders) DDx: SCA, gluten ataxia, cerebellar degeneration, MSA Ix: Expanded genetic testing, vitamin level/autoimmune marker/celiac disease, trial of gluten-free diet, LP	Y	Y	8 [5 + 3]	20 [(5x2) + 4 + 3 + 2 + 1]	Y
8.	Case 38-2021: A 76-Year-Old	Primary Dx: Lead poisoning	Primary Dx: Acute intermittent porphyria	Primary Dx: Depression	Primary Dx: Depression	Primary Dx: Acute porphyria	Primary Dx: Acute porphyria	N	N	8	10 [5 + 3 +	N

	Woman with Abdominal Pain, Weight Loss, and Memory Impairment ⁸	from ingestion of Ayurvedic medicines	DDx: GI malignancy, porphyria, pancreatic disorder, autoimmunity (SLE)	DDx: Dementia, GI disorder, drug side effect, infections (UTI/pneumonia), electrolyte disturbance	DDx: Malnutrition, electrolyte disturbance, thyroid dysfunction, GI disorder	DDx: Small bowel obstruction, depression/PTSD, malnutrition	DDx: Small bowel obstruction, depression/PTSD, malnutrition			[5 + 3]	2]	
		Ix: Blood lead level	Ix: Genetic testing, porphyrin analysis, stool studies, MRI brain, cognitive assessment, psychiatric assessment, LFT, consult gastroenterologist		Ix: CBC/metabolic panel/TFT/vitamin and mineral level, psychiatric evaluation, CT/MRI abdomen	Ix: Genetic testing, electrolyte level, vitamin and mineral level, small bowel imaging	Ix: Genetic testing, electrolyte level, vitamin and mineral level, small bowel imaging					
9.	Case 1-2022: A 67-Year-Old Man with Motor Neuron Disease and Odd Behaviors during Sleep ⁹	Primary diagnosis: Anti-IgLON5 disease	Primary Dx: REM sleep behavioral disorder due to MSA	Primary Dx: OSA	N/A, patient first presented to the author’s hospital for his/her chief complaint.	Primary Dx: MND	Primary Dx: MND	N	N	12	14	N
		Investigations: Serum for anti-IgLON5	DDx: Parkinson’s disease, Lewy body dementia,	DDx: Central sleep apnea, REM sleep behavior disorder, narcolepsy, periodic limb movement disorder		DDx: Parkinson’s disease, MSA, REM sleep behavior disorder, OSA	DDx: OSA, REM sleep behavior disorder, narcolepsy			[5 + 4 + 3]	[5 + 4 + 3 + 2]	
			Ix: PSG, MRI brain, DaTSCAN, LP, genetic testing, consult neurologist/sleep specialist			Ix: PSG, MRI brain, DaTSCAN, autonomic function test	Ix: PSG, MRI brain, multiple sleep latency test, EEG					
10.	Case 5-2022: A 65-Year-Old Woman with	Primary Dx: Genetic CJD	Primary Dx: CJD	Primary Dx: Stroke	Primary Dx: SCA	Primary Dx: MND	Primary Dx: Genetic CJD	Y	Y	10	13	Y
											[(5x2) +	

	Rapidly Progressive Weakness in the Right Arm and Recurrent Falls ¹⁰	Ix: CSF test for RT-QuIC, PRNP genotyping	DDx: MSA, MND Ix: Genetic testing, CSF analysis, EMG/neuromuscular junction testing, genetic counseling, neurological consultation	DDx: Brain tumor, MS, cervical myelopathy, Parkinson's disease, peripheral neuropathy, musculoskeletal issue	DDx: MSA, cerebellar degeneration (paraneoplastic/toxin/autoimmune), CJD Ix: Genetic testing, MRI brain, EMG/NCV, LP, vitamin level/TFT/autoimmune marker/paraneoplastic marker	DDx: Multi-focal motor neuropathy, cervical myelopathy, paraneoplastic syndrome, autoimmune encephalitis Ix: MRI spine, LP, MND/autoimmune antibody level, muscle biopsy, EMG/NCV	DDx: MND, paraneoplastic syndrome, MS, hereditary spastic paraplegia, vitamin B12/Folate deficiency Ix: Genetic testing for CJD, refer prion specialist					
11.	Case 7-2022: A 65-Year-Old Woman with Depression, Recurrent Falls, and Inability to Care for Herself ¹¹	Primary Dx: CNS lymphoma Ix: MRI brain; targeted tissue biopsy	Primary Dx: CJD DDx: Functional neurologic disorder, vascular dementia, depression with psychotic features Ix: CSF analysis, EEG, genetic testing, MRI brain	Primary Dx: Depression DDx: Neurodegenerative disorder (Parkinson's disease/Alzheimer's disease), NPH, TIA, B12 deficiency, hypothyroidism	Primary Dx: Functional neurological disorder DDx: Depression, neurodegenerative disorder (Parkinson's disease/Alzheimer's disease), NPH, MS, vascular dementia Ix: Neuropsychological testing, LP, vitamin level/TFT/inflammation	Primary Dx: Functional neurological disorder DDx: Depression, neurodegenerative disorder (Parkinson's disease/Alzheimer's disease), NPH, MS, vascular dementia Ix: Neuropsychological testing, LP, vitamin level/TFT/inflammation	Primary Dx: Functional neurologic disorder DDx: Depression, progressive neurological disease (MS), neurodegenerative disorder (Parkinson's disease, dementia), stroke, metabolic/toxic causes, CNS infection (meningitis/encephalitis), non-	N	N	9 [5 + 4]	12 [5 + 4 + 3]	Y

					ical testing, LP, vitamin level/TFT/inflammatory marker, MRI spine	tory marker, MRI brain, EEG	convulsive status epilepticus, autoimmune/paraneoplastic encephalitis					
							Ix: MRI brain, LP, EEG, neuropsychological testing, autoimmune/paraneoplastic encephalitis markers, consult psychiatrist					
12.	Case 27-2022: A 32-Year-Old Man with Confusion, Headache, and Fever ¹²	Primary Dx: Neuro-Behçet's disease Ix: MRI brain	Primary Dx: Meningoencephalitis DDx: Viral meningitis, autoimmune/inflammatory disorder of CNS, bacterial meningitis, TB meningitis, fungal meningitis Ix: LP, MRI brain and spinal cord, EEG, infectious disease serology and cultures, consult neurology/infectious disease/rheumatologist	Primary Dx: Meningitis DDx: Encephalitis, brain abscess, subdural/epidural hematoma, cerebral venous sinus thrombosis, autoimmune/paraneoplastic encephalitis, Lyme disease, sepsis, toxic-metabolic causes	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Neuro-Behçet's disease DDx: Infective meningitis, encephalitis, brain abscess, cerebral venous sinus thrombosis, autoimmune/paraneoplastic encephalitis, Lyme disease, sepsis Ix: CBC/blood culture/CRP, LP, MRI/CT brain, Lyme disease/viral serology, autoimmune/parane	Primary Dx: Neuro-Behçet's disease DDx: Viral meningitis/encephalitis, bacterial/fungal meningitis, cerebral venous sinus thrombosis, brain abscess Ix: CSF analysis, MRI brain, autoimmune/paraneoplastic antibodies, consult rheumatologist/ne	Y	Y	6 [3 + 2 + 1]	17 [(5x2) + 4 + 3]	Y

					oplastic antibodies	urologist						
13.	Case 34-2022: A 57-Year-Old Woman with Covid-19 and Delusions ¹³	<p>Primary Dx: Cotard's syndrome, catatonia, and depression after COVID</p> <p>Ix: MRI brain, EEG, LP</p>	<p>Primary Dx: Cotard's syndrome</p> <p>DDx: Depression, psychotic disorder due to general medical condition, delusional disorder</p> <p>Ix: Neurological evaluation, MRI brain, CBC/metabolic panel/TFT/infectious disease screening, psychiatric evaluation, consult psychiatrist/neurologist/internist</p>	<p>Primary Dx: Cotard's syndrome</p> <p>DDx: Psychotic depression, delirium, schizophrenia, neurological disorder (dementia/brain tumor/encephalitis)</p>	<p>N/A, patient first presented to the author's hospital for his/her chief complaint.</p>	<p>Primary Dx: Cotard's syndrome with catatonia</p> <p>DDx: Psychotic depression, delirium, drug side effect</p> <p>Ix: CBC/metabolic panel/TFT/blood culture, CXR, CT/MRI brain, EEG, LP, toxicology screen, psychiatric evaluation</p>	<p>Primary Dx: Cotard's syndrome with catatonia</p> <p>DDx: Psychotic depression, delirium, drug side effect</p> <p>Ix: CBC/metabolic panel/TFT/blood culture, CXR, CT/MRI brain, EEG, LP, toxicology screen, psychiatric evaluation</p>	Y	Y	10	12	Y
										[(5x2)]	[(5x2) + 2]	
Infectious diseases												
1.	Case 14-2018: A 68-Year-Old Woman with a Rash, Hyponatremia, and Uveitis ¹⁴	<p>Primary Dx: Indian tick typhus caused by <i>Rickettsia conorii</i> subspecies indica</p> <p>Ix: punch skin biopsy, antibodies to</p>	<p>Primary Dx: Lyme disease</p> <p>DDx: Viral exanthema, drug eruption, SLE, RA</p> <p>Ix: Lyme serology, LP, PCR, ophthalmologic</p>	<p>Primary Dx: Sjogren's syndrome</p> <p>DDx: SLE, RA, GPA, sarcoidosis</p>	<p>N/A, patient first presented to the author's hospital for his/her chief complaint.</p>	<p>Primary Dx: Indian tick typhus/ scrub typhus</p> <p>DDx: Dengue fever, Chikungunya, Lyme disease, leptospirosis, SLE, Sjogren's syndrome</p>	<p>Primary Dx: Indian tick typhus/ scrub typhus</p> <p>DDx: Lyme disease, dengue fever, leptospirosis, Chikungunya, SLE, Sjogren's</p>	Y	Y	5	16	Y
										[5]	[(5x2) + 4 + 2]	

		rickettsiae of the spotted fever group with an indirect immunofluorescence assay, blood for 23S ribosomal RNA	evaluation				Ix: CBC, metabolic panel, CRP/ESR, Rickettsia serology, serology for other infections, autoimmune marker	syndrome					
								Ix: CBC, metabolic panel, CRP/ESR, Rickettsia serology, serology for other infections, autoimmune marker					
2.	Case 16-2018: A 45-Year-Old Man with Fever, Thrombocytopenia, and Elevated Aminotransferase Levels ¹⁵	Primary diagnosis: tick-borne disease (Anaplasmosis) Ix: Peripheral blood smear	Primary Dx: Dengue fever DDx: viral infection (Zika/ Chikungunya), drug reaction, autoimmune disorder Ix: Dengue serology, viral serology, skin biopsy, CBC/LFT	Primary Dx: viral infection (Dengue/Zika/Chikungunya) DDx: Cellulitis/Lyme disease, drug reaction, autoimmune disease (SLE/RA), tick-borne diseases/spider bite, malaria	Primary Dx: Lyme disease DDx: Ehrlichiosis/Anaplasmosis, Babesiosis, viral infection (Dengue/Zika/Chikungunya) Ix: serology or PCR for Lyme disease/ Ehrlichiosis/Anaplasmosis/Babesiosis/viruses	Primary Dx: Lyme disease DDx: Ehrlichiosis/Anaplasmosis, Babesiosis, Rocky Mountain spotted fever Ix: serology or PCR for Lyme disease/ Ehrlichiosis/Anaplasmosis/Babesiosis/Rocky Mountain spotted fever	Primary Dx: Anaplasmosis/Ehrlichiosis DDx: Lyme disease, Rocky Mountain spotted fever, Babesiosis, viral infection (EBV/CMV), leptospirosis Ix: serology testing/PCR, blood smear examination for above DDx	Y	Y	9 [5 + 4]	19 [(5x2) + 4 + 3 + 2]	Y	
3.	Case 30-2018: A 66-Year-Old Woman with Chronic Abdominal Pain ¹⁶	Primary Dx: Colonic mass due to infection with an intravascular nematode, most likely	Primary Dx: CA Colon DDx: IBD, infective colitis	Primary Dx: CA colon DDx: Appendicitis,	Primary Dx: Peptic ulcer DDx: GERD, gastritis,	Primary Dx: temporomandibular joint disorder DDx: Peptic ulcer,	Primary Dx: CA colon DDx: IBD, infectious colitis,	N	Y	15 [5 + 4 + (3x2)]	15 [5 + 4 + (3x2)]	N	

		<i>Angiostrongylus costaricensis</i>	(TB/amebiasis), ischemic colitis	diverticulitis, cholecystitis, kidney stone, ovarian cyst/torsion, IBD, IBS, UTI	pancreatitis, biliary disease, GI malignancy, IBD, diverticulitis, infectious gastroenteritis	GERD, gastritis, pancreatitis, biliary disease, GI malignancy	diverticulitis						
		Ix: Laparoscopic right colectomy with pathological examination	Ix: Colonoscopy, staging workup for cancer, CBC/LFT/RFT, genetic testing, consult oncologist		Ix: CBC/ metabolic panel/ LFT, <i>H. pylori</i> testing, USG abdomen, OGD/CLN, CT abdomen/pelvis	Ix: CBC/ metabolic panel/ LFT, H pylori testing, USG abdomen, OGD/CLN, CT abdomen/pelvis, temporomandibular joint imaging	Ix: MRI/PET-CT imaging, CLN with biopsy, CBC/LFT/CRP/E SR, consult gastroenterologist, surgical oncologist						
4.	Case 34-2018: A 58-Year-Old Woman with Paresthesia and Weakness of the Left Foot and Abdominal Wall ¹⁷	Primary Dx: Lyme radiculopathy. Ix: serum for Lyme borreliosis IgM and IgG	Primary Dx: Transverse myelitis DDx: Spinal cord compression, MS, GBS, neuromyelitis optica Ix: LP, serology for demyelinating disease, NCV/EMG, autoimmune panel	Primary Dx: Peripheral neuropathy DDx: Cervical/lumbar radiculopathy, MS, GBS, stroke/TIA, myasthenia gravis, vasculitis affecting peripheral nerves	Primary Dx: Lyme disease DDx: MS, spinal cord compression, GBS, transverse myelitis, B12 deficiency Ix: Serology for Lyme disease, MRI brain/spinal cord, LP, CBC/ESR/CRP/ B12 level/TFT, NCV/EMG	Primary Dx: CIDP DDx: Lyme disease, MS, spinal cord compression, GBS, transverse myelitis, B12 deficiency Ix: Serology for Lyme disease, MRI brain/spinal cord, LP, CBC/ESR/CRP/B12 level/TFT, NCV/EMG	Primary Dx: Lyme disease DDx: CIDP, DM neuropathy, MS, B12 deficiency, GBS, transverse myelitis, cord compression Ix: Serology for Lyme disease, MRI brain, LP, CBC/ESR/CRP/B 12 level/TFT, NCV/EMG	Y	Y	0	17	Y	
												[(5x2) + 4 + 3]	
5.	Case 2-2019: A 36-Year-Old	Primary Dx:	Primary Dx: Disseminated TB	Primary Dx: Infectious	Primary Dx: Cutaneous	Primary Dx: Recurrent bacterial	Primary Dx:	N	Y	19	19	Y	

	Man with Rash, Abdominal Pain, and Lymphadenopathy ¹⁸	Cutaneous TB	infection	mononucleosis	leishmaniasis	folliculitis	Brucellosis			$[(5 \times 2) + 4 + 3 + 2]$	$[5 + (4 \times 2) + 3 + 2 + 1]$	
		Ix: Enzyme-linked immunospot IGRA, axillary lymph node biopsy specimen for acid fast bacilli culture, urine and sputum were saved for acid fast bacilli culture	DDx: Disseminated fungal infection (histoplasmosis/ coccidioidomycosis), sarcoidosis, malignancy, disseminated bacterial infections Ix: Mycobacterial culture, AFB staining, IGRA, CXR/CT-thorax, liver biopsy	DDx: Lymphoma, SLE, HIV, DRESS	DDx: Lymphoma, TB, fungal infection Ix: Skin biopsy, serology for leishmaniasis, LN biopsy	DDx: Cutaneous leishmaniasis, lymphoma, tuberculosis Ix: Abdominal USG/CT, LN biopsy, blood culture, CBC	DDx: TB, fungal infection, malignancy (lymphoma/ liver metastasis), sarcoidosis, autoimmune/inflammatory disorders Ix: Serology test for brucellosis, TB test, fungal culture/serology, liver/LN biopsy					
6.	Case 3-2019: A 70-Year-Old Woman with Fever, Headache, and Progressive Encephalopathy ¹⁹	Primary Dx: Powassan virus meningoencephalitis Ix: CSF test for Powassan virus IgM antibodies	Primary Dx: Tick-borne encephalitis (flavivirus) DDx: HSV encephalitis, bacterial encephalitis, viral meningitis, neurosyphilis Ix: Repeat CSF analysis, serology for Lyme disease/ tick-borne encephalitis, MRI brain, EEG monitoring, consult microbiologist/neurologist	Primary Dx: Meningitis DDx: Encephalitis, SAH, brain abscess, cerebral venous thrombosis, migraine, autoimmune/paraneoplastic encephalopathy, systemic infection with CNS involvement	Primary Dx: Lyme disease DDx: Meningitis, encephalitis, brain abscess, cerebral venous sinus thrombosis, autoimmune/paraneoplastic encephalitis, toxic/metabolic encephalopathy, systemic infection	Primary Dx: Autoimmune/paraneoplastic encephalitis DDx: infectious encephalitis, Lyme disease, meningitis, toxic/metabolic encephalopathy, cerebral vasculitis, CNS lymphoma, CJD Ix: LP, CBC/electrolyte/ESR and CRP, serology for Lyme disease, MRI brain,	Primary Dx: Arboviral encephalitis DDx: Tick-borne disease (Lyme disease/Anaplasmosis/Babesiosis), bacterial meningitis, autoimmune/paraneoplastic encephalitis, fungal/cryptococcal meningitis, TB meningitis	Y	Y	15 $[(5 \times 2) + 3 + 2]$	20 $[(5 \times 2) + 4 + 3 + 2 + 1]$	Y

		ogist										
					Ix: LP, CBC/electrolyte /ESR and CRP, serology for Lyme disease, MRI brain	whole-body imaging, EEG, brain biopsy				Ix: Arboviral serology, Lyme serology, CSF culture/Gram stain, CSF fungal culture/cryptococcal antigen testing, CSF testing for TB, autoimmune/paraneoplastic workup		
7.	Case 8-2019: A 58-Year-Old Woman with Vision Loss, Headaches, and Oral Ulcers ²⁰	Primary Dx: Syphilis Ix: Skin biopsy specimen examined for <i>Treponema pallidum</i> , blood for treponemal antibodies	Primary Dx: Behçet's disease DDx: Infective retinitis, CNS vasculitis, sarcoidosis, SLE Ix: CBC/ESR/CRP, ANA/ANCA/RF, skin biopsy, serology/PCR analysis of infectious disease	Primary Dx: GCA DDx: Optic neuritis, central retinal artery/vein obstruction, cerebral vasculitis, infections (syphilis/ Lyme disease/ HSV)	Primary Dx: Behçet's disease DDx: SLE, sarcoidosis, Vogt-Koyanagi-Harada syndrome Ix: ESR/CRP/ANA /anti-dsDNA/other autoantibodies/ CBC, HLA-B51, CXR/CT-thorax, ophthalmologic examination	Primary Dx: Atypical Behçet's disease DDx: SLE/Sjogren's syndrome, vasculitis (GPA/ microscopic polyangiitis), IBD, sarcoidosis, infectious etiology (Lyme disease/ syphilis/TB/viral infections) Ix: ophthalmology exam, ESR/CRP/C3 and C4/autoimmunity panel, serology for Lyme disease/syphilis/TB/ virus, CXR/HRCT, skin biopsy,	Primary Dx: Ocular/CNS infection (Lyme disease/syphilis/viral/bacterial/fungal)	Y	Y	10 [5 + 3 + 2]	17 [(5x2) + 4 + 2 + 1]	Y

						Pathergy test, MRI brain	umatologist					
8.	Case 15-2019: A 55-Year-Old Man with Jaundice ²¹	<p>Primary Dx: Acute HBV infection in the presence of chronic HCV infection</p> <p>Ix: HBsAg, HBeAg, anti-HBs, anti-HBc, HBV DNA</p>	<p>Primary Dx: acute HCV infection</p> <p>DDx: Drug-induced, alcoholic hepatitis, co-infection of HBV, acute HAV infection</p> <p>Ix: HCV RNA, liver biopsy, serology for hepatitis virus (Anti-HIV, HBsAg, Anti-HBc, Anti-HBs), abdominal USG/CT</p>	<p>Primary Dx: HCV exacerbation</p> <p>DDx: Alcoholic liver disease, drug-induced liver injury, HBV infection, autoimmune hepatitis, biliary obstruction</p>	<p>Primary Dx: HCV exacerbation</p> <p>DDx: Drug-induced liver disease, acute HBV infection, biliary obstruction</p> <p>Ix: LFT, HCV viral load/genotype, HBV serology, abdominal USG, autoantibodies/Ig levels</p>	<p>Primary Dx: Acute HCV exacerbation</p> <p>DDx: Drug-induced liver injury, alcoholic liver disease, cholestatic liver disease, autoimmune hepatitis</p> <p>Ix: HAV/HBV/HEV serology, liver biopsy, autoantibodies and Ig level, abdominal USG/CT</p>	<p>Primary Dx: Acute HCV infection</p> <p>DDx: Drug-induced liver injury, alcoholic liver disease, HBV co-infection, autoimmune hepatitis, cholestatic liver disease, NASH</p> <p>Ix: serology for HAV/HBV, LFT, autoimmune markers, abdominal CT/MRI, liver biopsy</p>	N	Y	14	13	Y
										[5 + 4 + (2x2) + 1]	[5 + 4 + (2x2)]	
9.	Case 16-2019: A 53-Year-Old Man with Cough and Eosinophilia ²²	<p>Primary Dx: Tropical pulmonary eosinophilia (lymphatic filariasis)</p> <p>Ix: Examination of the stool and sputum for ova</p>	<p>Primary Dx: Paragonimiasis</p> <p>DDx: Hypersensitivity pneumonitis, TB, Strongyloidiasis</p>	<p>Primary Dx: Chronic bronchitis</p> <p>DDx: Postnasal drip, GERD, asthma, COPD, bronchiectasis, pertussis, lung cancer, TB,</p>	<p>N/A, patient first presented to the author's hospital for his/her chief complaint.</p>	<p>Primary Dx: Acute bronchitis/pneumonia</p> <p>DDx: Viral URTI, chronic bronchitis exacerbation, TB, sinusitis, post-infectious cough,</p>	<p>Primary Dx: Strongyloidiasis</p> <p>DDx: Asthma/ABPA, SLE, TB, pneumonia, hypersensitivity pneumonitis, bronchitis,</p>	N	N	9	11	N
										[4 + 3 + 2]	[5 + 4 + 2]	

		and parasites, peripheral-blood smear for microfilariae, serum for antibodies to schistosoma, strongyloides, and filarial species	Ix: Serology for paragonimus, sputum examination, CT-thorax, eosinophil count and peripheral blood smear, consult pulmonologist/microbiologist	heart failure, pneumonia, ILD		pertussis						sinusitis, fungal infection
						Ix: CBC, CXR, sputum culture, tuberculin skin test/IGRA, lung function, NPS for virus						Ix: Stool for strongyloides larvae, sputum AFB exam, HRCT, lung function, bronchoscopy with BAL/biopsy
10.	Case 19-2019: A 38-Year-Old Woman with Abdominal Pain and Fever ²³	Primary Dx: Intestinal TB Ix: Acid-fast stains of the right hemicolectomy specimen and lymph nodes	Primary Dx: Severe active Crohn's disease DDx: Infective colitis (bacterial/parasitic), CMV colitis, ischemic colitis, intestinal TB Ix: CLN with biopsy, stool culture and ova & cyst, capsule endoscopy/double balloon enteroscopy, genetic testing for IBD	Primary Dx: Crohn's disease flare up DDx: Infection (bacterial/viral gastroenteritis), intra-abdominal abscess, bowel obstruction, gut perforation, diverticulitis	Primary Dx: Crohn's disease flare up DDx: Small bowel obstruction, <i>C. difficile</i> infection, intra-abdominal abscess, gut perforation Ix: CBC/CRP/ESR/LFT/RFT, stool for blood/ <i>C. difficile</i> , CT/MRI abdomen & pelvis, CLN, capsule endoscopy	Primary Dx: Crohn's disease flare up DDx: Infections (<i>C. difficile</i> / <i>H pylori</i>), small bowel obstruction, intra-abdominal abscess, perforation Ix: CBC/CRP/ESR/LFT/RFT, stool for blood/ <i>C. difficile</i> , CT/MRI abdomen & pelvis, CLN, capsule endoscopy	Primary Dx: Crohn's disease severe exacerbation/complication (bowel obstruction/ileocolic fistula) DDx: Intra-abdominal abscess, bacterial infection, GI TB Ix: CT/MRI enterography, surgical exploration, mycobacterial culture from tissue samples	N	Y	11 [5 + 4 + (1x2)]	12 [5 + 3 + (2x2)]	Y

11.	Case 20-2019: A 52-Year-Old Woman with Fever and Rash after Heart Transplantation ²⁴	<p>Primary Dx: Reactivation of latent <i>Trypanosoma cruzi</i> infection of recipient origin</p> <p>Ix: Serologic studies were performed for the detection of antibodies to T. cruzi</p>	<p>Primary Dx: Disseminated shingles</p> <p>DDx: Erysipelas, cellulitis</p> <p>Ix: Viral culture/PCR for VZV, CBC, blood culture, LP, tissue biopsy, consult dermatologist/microbiologist</p>	<p>Primary Dx: Cellulitis</p> <p>DDx: Erysipelas, shingles, DVT, calciphylaxis</p>	<p>Primary Dx: Cellulitis</p> <p>DDx: Erysipelas, shingles, DVT, calciphylaxis</p> <p>Ix: Blood culture, wound culture, CBC/CRP, Doppler USG, skin biopsy</p>	<p>Primary Dx: Cellulitis</p> <p>DDx: Erysipelas, drug eruption/hypersensitivity, vasculitis, erythema nodosum</p> <p>Ix: CBC, blood culture, skin biopsy and culture, USG/MRI to affected area, serology for vasculitis</p>	<p>Primary Dx: Infection (bacterial/viral/fungal)</p> <p>DDx: Vasculitis, autoimmune reaction, drug reaction</p> <p>Ix: ESR/CRP, serology for infection/autoimmune markers, skin biopsy, LP</p>	N	N	0	11	N
											[5 + 4 + 2]	
12.	Case 31-2019: A 45-Year-Old Woman with Headache and Somnolence ²⁵	<p>Primary Dx: Adenovirus meningoencephalitis.</p> <p>Ix: CSF, urine and blood for adenovirus PCR; viral culture of CSF for adenovirus</p>	<p>Primary Dx: Acute disseminated encephalomyelitis with encephalitis and meningoencephalitis</p> <p>DDx: CNS infection (viral/bacterial), MS exacerbation, autoimmune encephalopathy, other inflammatory demyelinating disorder</p> <p>Ix: LP, autoimmune/paraneoplastic panel, blood</p>	<p>Primary Dx: MS</p> <p>DDx: Infections (UTI/pneumonia), drug side effect, depression, migraine, metabolic/electrolyte abnormalities</p>	<p>Primary Dx: Migraine with aura</p> <p>DDx: MS, infections, drug side effect, stroke/TIA, intra-cranial mass, temporal arteritis</p> <p>Ix: CT/MRI brain, CBC/electrolyte level, liver and kidney function/ESR/C</p>	<p>Primary Dx: Autoimmune/paraneoplastic encephalitis</p> <p>DDx: CNS infection, MS, immunosuppressive therapy complication, drug side effect, stroke/TIA</p> <p>Ix: CSF analysis, autoantibody testing, EEG, repeat neuroimaging, blood culture</p>	<p>Primary Dx: Meningitis/encephalitis</p> <p>DDx: Autoimmune/paraneoplastic encephalitis, MS complication, CNS vasculitis, neoplastic meningitis</p> <p>Ix: CSF analysis, serology for tick-borne disease (Lyme disease/Anaplasma)</p>	Y	Y	10	16	Y
											[(4x2) + 2]	[(5x2) + 4 + 2]

			culture, serology for viral infections, MR spectroscopy/ PET scan, consult neurologist/ neuro-immunologist		RP, LP		osis), consult microbiologist, possibly repeating LP if not improve					
13.	Case 36-2019: A 34-Year-Old Man with Dyspnea, Odynophagia, and Abdominal Pain ²⁶	Primary Dx: GI Kaposi's sarcoma Ix: upper endoscopy with biopsy	Primary Dx: PJP infection DDx: HIV/AIDS, syphilis, bacterial pneumonia, GI infections (CMV/MAC infection), TB Ix: BAL, AFB culture, HIV viral load and CD4+ count, serology for syphilis, stool culture/ova and cyst/ <i>C. difficile</i> toxin, USG/CT abdomen	Primary Dx: Asthma exacerbation DDx: Pneumonia, bronchitis, COPD exacerbation, PE	Primary Dx: TB DDx: Pneumonia, fungal infection, HIV/AIDS, lung cancer Ix: CXR, sputum culture, TST/IGRA, HIV testing, CBC, blood culture, CT-thorax	Primary Dx: PJP DDx: TB, bacterial pneumonia, fungal infection (e.g. candidiasis/ aspergillosis) Ix: Bronchoscopy with BAL, CD4 count and HIV viral load, sputum culture/smear, TST/IGRA, blood culture	Primary Dx: PJP infection DDx: Bacterial pneumonia, TB, fungal infection, CMV pneumonia, Kaposi's sarcoma Ix: BAL, sputum culture, CT-thorax, abdominal imaging, LFT/amylase/lipase, dermatological examination and skin biopsy, HIV viral load and CD4+ count	N	Y	1 [1]	6 [3 + 2 + 1]	Y
14.	Case 40-2019: A 26-Year-Old Returning Traveler with Headache ²⁷	Primary Dx: Lymphocytic choriomeningitis virus infection Ix: Serum and CSF for LCMV-specific immunoglobulins by means of	Primary Dx: Viral meningitis DDx: TB meningitis, Lyme meningitis, autoimmune/inflammatory meningitis (SLE/GPA), other infectious disease	Primary Dx: Migraine DDx: Tension headache, cluster headache, sinus headache, medication overuse,	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Subarachnoid hemorrhage DDx: Meningitis, medication overuse, sinusitis, atypical migraine	Primary Dx: Meningitis (viral/atypical bacterial) DDx: SAH, medication overuse headache, atypical migraine	Y	Y	12 [(5x2) + 2]	10 [(5x2)]	Y

		an enzyme-linked immunosorbent assay (ELISA) for IgM and IgG	Ix: PCR for virus, cryptococcal antigen test, TB testing, Lyme disease testing, autoimmune panel, consult microbiologist	secondary headache (brain tumor/meningitis/SAH)		Ix: CT/MRI brain, LP, CBC/blood culture	Ix: PCR of CSF for viruses (enterovirus/West Nile virus/arbovirus), serology for Rickettsia/Bartonella/Brucella, CSF culture					
15.	Case 2-2020: A 64-Year-Old Man with Fever and Respiratory Failure ²⁸	Primary Dx: Disseminated coccidiomycosis and ANCA-associated GN Ix: Bronchoscopy and bronchoalveolar fluid specimen examination	Primary Dx: GPA DDx: Microscopic polyangiitis, infection causes (atypical pneumonia/sepsis), vasculitis (eosinophilic granulomatosis with polyangiitis) Ix: Renal biopsy, autoantibodies for vasculitis, CT thorax/abdomen/pelvis, blood culture/viral studies (such as CMV), echocardiography	Primary Dx: Acute kidney injury DDx: Dehydration/hypovolemia, cardiogenic shock, sepsis, renal artery occlusion, Acute tubular necrosis/GN/interstitial nephritis/pyelonephritis/renal infarction, rhabdomyolysis, kidney stone, benign prostate hypertrophy, tumor, blood clot	Primary Dx: Pneumonia DDx: PE, acute bronchitis, pleurisy, tuberculosis, fungal infection (histoplasmosis/coccidiomycosis), atypical infections (mycoplasma/chlamydia pneumoniae), endocarditis Ix: CBC/ESR/CRP/blood culture/procalcitonin/LFT/RFT, CXR, sputum culture, CT thorax, urinary test for S	Primary Dx: Acute kidney injury + pneumonia DDx for acute kidney injury: Acute tubular necrosis/acute interstitial nephritis/cardiorenal syndrome, post-renal obstruction, GN DDx for pulmonary findings: Pneumonia, PE, atypical infections (mycoplasma/Chlamydia pneumoniae), fungal (histoplasmosis/coccidiomycosis), TB, sarcoidosis, lymphoma, bronchogenic carcinoma	Primary Dx: ANCA vasculitis DDx: Infectious etiology (CMV/bacteria/viral pneumonia/fungal such as PCP/aspergillosis/cryptococcus/candida/endemic fungi/ TB), heart failure, drug-induced lung injury Ix: Bronchoscopy with BAL, renal biopsy, echocardiogram, blood and urine culture	Y	Y	10 [(5x2)]	14 [(5x2) + 4]	Y

					<i>pneumoniae/Le</i> <i>gionella,</i> serology for atypical infection/fungal infections, TTE	Ix: CBC/ESR/CRP/blo od culture/procalcitoni n/LFT/RFT, CXR, sputum culture, CT thorax, urinary test for S <i>pneumoniae/Legion</i> <i>ella,</i> serology for atypical infection/fungal infections, TTE, bronchoscopy/BAL, kidney biopsy						
16.	Case 3-2020: A 44-Year-Old Man with Weight Loss, Diarrhea, and Abdominal Pain ²⁹	Primary Dx: Strongyloidiasis with hyperinfection syndrome. Ix: Upper endoscopy and CLN with biopsy	Primary Dx: Crohn's disease DDx: Infectious gastroenteritis, TB, lymphoma, IBS Ix: CLN, capsule endoscopy/MRI enterography/follow- through, anti- saccharomyces cerevisiae antibodies/CRP	Primary Dx: IBD DDx: IBS, celiac disease, gastroenteritis, colorectal cancer, malabsorption syndrome, parasitic infection, diverticulitis	Primary Dx: Did not commit DDx: Infectious gastroenteritis, IBD, celiac disease, tropical sprue, GI malignancy, pancreatic insufficiency Ix: CBC/LFT/RFT/ ESR/CRP/vitam in/electrolyte, stool test, serology for celiac disease/tropical sprue/autoimmu nity, abdominal USG/CT/MRI,	Primary Dx: Did not commit DDx: Infectious gastroenteritis, IBD, celiac disease, tropical sprue, GI malignancy, Whipple's disease Ix: CBC/LFT/RFT/ESR /CRP/vitamin/electr olyte, stool test, serology for celiac disease/tropical sprue/autoimmunity, abdominal USG/CT/MRI, endoscopy, capsule endoscopy	Primary Dx: Whipple's disease DDx: IBD, GI lymphoma, TB infection, celiac disease, intestinal parasitic infection Ix: Upper endoscopy, PCR for Whipple's disease, stool microscopy/cultur e, CLN, IGRA	N	Y	7 [5 + 2]	13 [5 + 4 + 3 + 1]	Y

					endoscopy							
17.	Case 10-2020: An 83-Year-Old Man with Pancytopenia and Acute Renal Failure ³⁰	Primary Dx: <i>Anaplasma phagocytophilum</i> infection Ix: a nucleic acid test of whole blood for <i>A. phagocytophilum</i>	Primary Dx: Acute promyelocytic leukemia DDx: DIC , HUS, aplastic anemia/MDS Ix: Bone marrow exam, cytogenetic analysis/molecular testing for APL, coagulation studies, RFT, CT thorax/abdomen/pelvis	Primary Dx: MDS DDx: Acute leukemia, aplastic anemia, infections, myeloma, paroxysmal nocturnal hemoglobinuria , autoimmune such as SLE, drug-induced	Primary Dx: Did not commit DDx: Infection (such as Lyme disease), MDS, drug-induced, acute leukemia, aplastic anemia, myeloma Ix: CBC/blood culture/RFT/blood smear, bone marrow exam, CXR, urinalysis, serology for infections	Primary Dx: Rhabdomyolysis DDx: Infection, DIC, drug-induced, hematological malignancy Ix: CK, urinalysis, blood culture, serology for infections, peripheral blood smear, coagulation profile, bone marrow exam	Primary Dx: Autoimmunity (such as microscopic polyangiitis/SLE) DDx: Infections (sepsis/endocarditis/tick-borne illness), acute promyelocytic leukemia, drug-induced, paraneoplastic Ix: Bone marrow exam, autoimmune/vasculitis workup, infectious workup (culture, serology for tick-borne illness, echocardiogram), imaging for thorax/abdomen/pelvis	N	Y	8 [5 + 2 + 1]	11 [(4x2) + 3]	Y
18.	Case 11-2020: A 37-Year-Old Man with Facial Droop, Dysarthria, and Kidney Failure ³¹	Primary Dx: AA amyloidosis and fungal brain abscess related to injection-drug use Ix: Renal biopsy,	Primary Dx: Fungal brain abscess (aspergillus/candida/zygomycetes) DDx: Bacterial brain abscess, TB Ix: Fungal culture,	Primary Dx: Stroke DDx: Bell's palsy, GBS, lupus, vasculitis	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Did not commit DDx: IE, stroke, meningitis/encephalitis, GBS, vasculitis Ix: blood culture, echocardiogram,	Primary Dx: Cerebral fungal abscess DDx: Bacterial cerebral abscess, brain tumor, IE with embolic stroke, vasculitis	Y	Y	10 [(5x2)]	11 [(5x2) + 1]	Y

		stereotactic brain biopsy	serology for fungus, MRI brain with contrast, CT-thorax, echocardiography for IE/ fungal emboli		CT/MRI brain, LP, urinalysis, RFT, serology for autoimmunity	Ix: Fungal culture, serology for fungus infection, CT/MRI brain, assess immune status							
19.	Case 12-2020: A 24-Year-Old Man with Fever, Cough, and Dyspnea ³²	Primary Dx: Hantavirus cardiopulmonary syndrome Ix: An enzyme-linked immunosorbent assay for Sin Nombre virus IgM and IgG	Primary Dx: SARS by a novel coronavirus DDx: Viral pneumonia, tick-borne illness (Lyme disease/Babesiosis), Legionnaires' disease Ix: Serology for COVID, blood culture, complete tick-borne disease panel, PCR for viral pathogens, CT-thorax, consult microbiology	Primary Dx: COVID DDx: Flu pneumonia, TB, bronchitis, asthma	Primary Dx: Hantavirus pulmonary syndrome DDx: Pneumonia, tick-borne illness, Legionnaires' disease, vaping-associated lung injury Ix: CT-thorax, blood culture, serology for tick borne illness, Hantavirus serology, CBC/ESR/CRP ABG, BAL,	Primary Dx: Severe atypical respiratory infection DDx: Severe pneumonia (Legionella/Mycoplasma/ Chlamydia), fungal pneumonia (Histoplasma/ Blastomyces), Hantavirus pulmonary syndrome, ARDS, tick-borne illness (Lyme disease/ Ehrlichiosis/Anaplasmosis), acute eosinophilic pneumonia/ hypersensitivity pneumonitis Ix: Blood culture/ sputum culture, serology for atypical bacterial pneumonia/fungus/hantavirus/tick-borne	Primary Dx: Hantavirus pulmonary syndrome DDx: Pneumonia, tick-borne illness, Legionnaires' disease, vaping-associated lung injury Ix: Serology for tick-borne illness, Hantavirus serology, blood culture, BAL, ABG	Y	Y	0	15	Y	[(5x2) + 4 + 1]

						disease, bronchoscopy with BAL, consult microbiologist						
20.	Case 16-2020: A 47-Year-Old Woman with Recurrent Melanoma and Pulmonary Nodules ³³	Primary Dx: Pulmonary histoplasmosis Ix: A flexible bronchoscopy with endobronchial ultrasound- guided trans- bronchial needle aspiration of the lymph nodes in the mediastinum and hila	Primary Dx: Metastatic melanoma with pulmonary involvement DDx: Metastatic disease from other primary cancer, TB/fungal infections (aspergillosis/histoplasmosis/cryptococcosis/coccidioidomycosis) Ix: biopsy, BRAF mutation testing, MRI brain /PET-CT, consult oncologist	Primary Dx: Metastatic melanoma DDx: Pneumonia, lymphoproliferative disorder, sarcoidosis, drug-induced lung injury	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Metastatic malignant melanoma DDx: Infections (pneumonia/fungal/parasitic), drug-induced lung injury, sarcoidosis, lymphoproliferative disorder Ix: Bronchoscopy with BAL and biopsy, pulmonary nodule biopsy, serology for fungus/parasite, CT/PET	Primary Dx: Metastatic malignant melanoma DDx: Infections (pneumonia/fungal/parasitic), drug-induced lung injury, sarcoidosis, lymphoproliferative disorder Ix: Bronchoscopy with BAL and biopsy, pulmonary nodule biopsy, serology for fungus/parasite, CT/PET	N	Y	11 [5 + (3x2)]	15 [5 + (4x2) + 2]	Y
21.	Case 18-2020: A 73-Year-Old Man with Hypoxemic Respiratory Failure and Cardiac Dysfunction ³⁴	Primary Dx: Infection with COVID, resulting in ARDS and suspected myopericarditis Ix: NPS for	Primary Dx: COVID pneumonia DDx: ARDS, bacterial pneumonia Ix: COVID PCR,	Primary Dx: COVID DDx: Pneumonia, COPD exacerbation, heart failure, PE, ARDS,	Primary Dx: COVID DDx: Pneumonia, flu, COPD exacerbation, heart failure, PE	Primary Dx: COVID DDx: Pneumonia, flu, COPD exacerbation, heart failure, PE Ix: PCR for COVID, CXR/CT-Thorax, CBC, blood	Primary Dx: COVID DDx: Pneumonia, flu, COPD exacerbation, heart failure, PE, myocarditis Ix: PCR for COVID,	Y	Y	10 [(5x2)]	11 [(5x2) + 1]	Y

		COVID	blood culture, CBC/procalcitonin/coagulation profile, echocardiography	pneumothorax	Ix: PCR for COVID, CXR/CT-Thorax, CBC, blood culture, procalcitonin, influenza testing, D-dimer, ECG	culture, procalcitonin, influenza testing, D-dimer, ECG, echocardiogram, CRP/LDH	CXR/CT-Thorax, CBC, blood culture, procalcitonin, influenza testing, D-dimer, ECG, echocardiogram, CRP/LDH , ABG					
22.	Case 25-2020: A 47-Year-Old Woman with a Lung Mass ³⁵	Primary Dx: Pneumonia due to COVID infection. Ix: Nasopharyngeal swab for COVID RNA	Primary Dx: COVID DDx: Other viral infections (flu/respiratory syncytial virus), lung cancer, pneumonia, tuberculosis, fungal infection Ix: Serology for COVID, CT-guided biopsy/bronchoscopy, follow up CT-thorax, tumor markers/coagulation studies/autoimmune markers	Primary Dx: COVID DDx: Flu, bacterial pneumonia, COPD exacerbation, asthma exacerbation, heart failure, exacerbation, PE	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: COVID DDx: Flu, pneumonia, asthma, bronchitis, allergic rhinitis, heart failure, PE Ix: COVID PCR, CXR, CBC, blood culture, flu testing, procalcitonin, D-dimer, ABG, NT-proBNP	Primary Dx: COVID DDx: Other viral pneumonia, bacterial pneumonia, atypical pneumonia, fungal pneumonia, lung cancer Ix: COVID PCR, bronchoscopy with BAL, blood culture, serology for atypical pneumonia, fungal testing, PET, tissue biopsy	Y	Y	20 [(5x2) + 4 + 3 + 2 + 1]	20 [(5x2) + 4 + 3 + 2 + 1]	Y
23.	Case 27-2020: A 53-Year-Old Woman with Headache and	Primary Dx: <i>Toxoplasma gondii</i> encephalitis in	Primary Dx: CNS lymphoma	Primary Dx: Brain tumor	Primary Dx: Stroke/ICH	Primary Dx: CNS neoplasm	Primary Dx: Metastatic brain tumor	N	Y	13 [5 + 4 +	14 [5 + 4 + (2x2) +	Y

Gait Imbalance ³⁶		the context of HIV-2 infection and associated AIDS	DDx: Metastatic brain tumor, glioblastoma multiforme, toxoplasmosis, MS	DDx: MS, chronic SDH, NPH, CNS infections, stroke/TIA, metabolic/endocrine disorder, nutritional deficiency (B12 deficiency), neurodegenerative disorder (Parkinson's disease/Alzheimer's disease)	DDx: Brain tumor, chronic SDH, CNS infection, NPH, neurodegenerative disorder (Parkinson's disease/Alzheimer's disease)	DDx: CNS lymphoma, metastatic brain tumor, infection (abscess/tuberculoma/neurocysticercosis), glioblastoma multiforme/ primary brain tumor, leptomeningeal carcinomatosis	DDx: CNS lymphoma, primary brain tumor, toxoplasmosis, infections (abscess/tuberculoma/neurocysticercosis)	(2x2)]		1]		
		Ix: HIV antigen–antibody screening test, blood for IgM and IgG Toxoplasma gondii	Ix: Brain biopsy, LP, HIV testing, PET scan, ophthalmological exam		Ix: MRI/CT brain, CBC/LFT/RFT/electrolyte/ESR/CRP/coagulation profile/ TFT, LP, EEG	Ix: Brain biopsy, CT/MRI thorax/abdomen/pelvis, LP, CBC/electrolyte/LFT/RFT/ESR/CRP/coagulation profile/ TFT/ tumor marker, PET scan	Ix: Brain biopsy, CT/MRI thorax/abdomen/pelvis, LP, CBC/electrolyte/LFT/RFT/ESR/CRP/coagulation profile/ TFT/ tumor marker, HIV management review					
24.	Case 31-2020: A 48-Year-Old Man with Lymphoma and Abdominal Pain ³⁷	Primary Dx: Disseminated cryptococcal infection Ix: Fungal blood culture, LP for cryptococcus neoformans	Primary Dx: Lymphoma DDx: Hepatic and splenic abscess, hepatic and splenic metastasis, hepatitis Ix: Liver biopsy, bone marrow exam, LP, repeat CT/PET, consult oncologist and	Primary Dx: Did not commit DDx: Lymphoma, peptic ulcer/gastroenteritis/IBD, appendicitis/diverticulitis, bowel obstruction, lymphoma treatment side	Primary Dx: Lymphoma DDx: Infections (GI infections/opportunistic infections), GERD/peptic ulcer, lymphoma treatment side effects, venous thromboembolism	Primary Dx: Lymphoma DDx: Infections (GI infections/opportunistic infections), GERD/peptic ulcer, lymphoma treatment side effects, venous thromboembolism Ix: Abdominal and pelvic CT/MRI,	Primary Dx: Diffuse large B cell lymphoma with possible hepatic and splenic involvement DDx: Infection/sepsis, drug-induced liver injury, hepatosplenic microabscess,	N	N	5 [5]	8 [5 + 3]	N

			hematologist	effect, pancreatitis/gall stone/kidney stone	m	PET scan, CBC/LFT/RFT/ESR/CRP, endoscopy/CLN, biopsy of suspicious lesion	cholangitis/cholecystitis					
					Ix: Abdominal and pelvic CT/MRI, PET scan, CBC/LFT/RFT/ESR/CRP, endoscopy/CLN, biopsy of suspicious lesion		Ix: Blood culture, hepatitis serology, liver biopsy, bone marrow exam, stool culture/testing for <i>C. difficile</i>					
25.	Case 32-2020: A 63-Year-Old Man with Confusion, Fatigue, and Garbled Speech ³⁸	Primary Dx: <i>Borrelia miyamotoi</i> infection Ix: CSF for RT-PCR of glpQ (glycerophosphodiester phosphodiesterase) gene of borreliae	Primary Dx: Neurosarcoidosis DDx: Primary CNS lymphoma, infectious meningitis (<i>S. pneumoniae</i> / <i>N. meningitidis</i> / <i>H. influenzae</i> / enteroviruses/TB/cryptococcus/histoplasma/coccidioides/ mycoplasma/toxoplasma), cerebral vasculitis, autoimmune encephalopathy Ix: Brain/optic nerve biopsy, blood/CSF testing for Lyme/syphilis/TB/fungal infection, autoimmune	Primary Dx: Stroke DDx: Meningitis, encephalitis, brain abscess, temporal arteritis	Primary Dx: CNS vasculitis DDx: Infectious meningitis/encephalitis, stroke, seizure Ix: LP, blood culture, serology for tick-borne illness, cerebral angiogram, MRI brain	Primary Dx: CNS vasculitis DDx: Infectious meningitis/encephalitis, stroke, seizure Ix: LP, blood culture, serology for tick-borne illness, cerebral angiogram, MRI brain	Primary Dx: Autoimmune encephalitis DDx: Infectious encephalitis (viral/bacterial/fungal/parasitic), CNS vasculitis, neurosarcoidosis, paraneoplastic syndrome, CNS lymphoma Ix: CSF for PCR/serology, autoimmune encephalitis panel, brain biopsy, malignancy evaluation, MRI brain, cerebral	N	N	9 [4 + 3 + 2]	7 [4 + 3]	Y

			encephalopathy panel, serum ACE level, MRI brain, ophthalmologic evaluation, consult rheumatologist									angiography
26.	Case 37-2020: A 35-Year-Old Man with Lymphadenopat hy and Petechiac ³⁹	Primary Dx: TB lymphadenitis Ix: Excisional of left inguinal lymph node for acid fast bacilli	Primary Dx: ITP DDx: Secondary ITP (infection/autoimmun e/medication), TTP, DIC Ix: Bone marrow exam, ADAMTS13 activity and inhibitor assay, autoimmune panel, GI evaluation, infection screening (hepatitis virus/HIV/EBV/CMV)	Primary Dx: Infectious mononucleosis DDx: Lymphoma, SLE, HIV, ITP, leukemia, sarcoidosis, Kikuchi- Fujimoto disease	Primary Dx: TB lymphadenitis DDx: Lymphoma, bacterial/viral infection, Kikuchi- Fujimoto disease, sarcoidosis Ix: CBC/ESR/CRP/ peripheral blood smear, TB testing, CXR, FNA/excisional biopsy for LN, serology for EBV/CMV, HIV testing, LDH/beta- 2microglobulin, ACE level	Primary Dx: ITP DDx: Lymphoma, Kikuchi-Fujimoto disease, sarcoidosis, drug-induced thrombocytopenia, vasculitis Ix: CBC/peripheral blood smear/ coagulation profile/ESR/CRP/au toimmune panel, HIV testing, excisional biopsy of LN, LDH/beta-2 microglobulin level, ACE level	Primary Dx: Kikuchi-Fujimoto disease DDx: Lymphoma, sarcoidosis, TB, Castleman's disease, vasculitis Ix: Excisional biopsy of LN, ACE level, LDH and beta-2 microglobulin level, autoimmune panel, IL-6 level, consult hematologist/onco logist	N	Y	5 [5]	13 [5 + 4 + (2x2)]	Y
27.	Case 40-2020: A 24-Year-Old Man with Headache and Covid-19 ⁴⁰	Primary Dx: Meningoenceph alitis, most likely due to cryptococcus Ix: CSF for	Primary Dx: Cerebral venous sinus thrombosis DDx: Meningitis, autoimmune encephalitis,	Primary Dx: COVID associated headache DDx: Tension headache,	Primary Dx: COVID DDx: Influenza, pneumonia, TB	Primary Dx: COVID DDx: Meningitis, encephalitis, cerebral venous sinus thrombosis,	Primary Dx: Meningitis (viral/bacterial/fu ngal) DDx: Encephalitis,	Y	Y	8 [(4x2)]	10 [(5x2)]	Y

		cryptococcal antigen and fungal smear and culture.	intracranial mass lesion, toxic/metabolic encephalopathy	migraine, sinus headache, dehydration headache, cerebral venous sinus thrombosis	Ix: COVID testing, CBC, CXR/CT-thorax, blood culture, TB testing, influenza testing	COVID neurological complication (encephalopathy/stroke/demyelinating disorder)	cerebral venous sinus thrombosis, COVID-related neurological complication, primary/secondary headache disorders					
			Ix: MRI venography, thrombophilia workup, EEG, infectious workup (viral/bacterial), autoimmune antibody panel			Ix: LP, CT/MRI brain, blood culture, ESR/CRP, EEG	Ix: LP, CT/RMI brain, blood culture, serology/PCR (HIV/syphilis/Lyme disease or other relevant infections), EEG, autoimmune/paraneoplastic workup					
28.	Case 1-2021: A 76-Year-Old Woman with Lethargy and Altered Mental Status ⁴¹	Primary Dx: Disseminated TB with associated central nervous system vasculitis. Ix: LP for CSF for acid fast bacilli	Primary Dx: Neurosyphilis DDx: Bacterial meningitis, neoplastic meningitis, fungal meningitis, chemotherapy-induced leukoencephalopathy Ix: CSF culture/PCR/cytology, MRI brain, serology for syphilis/Lyme disease/viral infections (HSV/VZV), tumor	Primary Dx: Did not commit DDx: Infection (UTI/pneumonia/sepsis), metabolic abnormality (electrolyte/blood glucose), dementia (Alzheimer's disease), drug side effect, dehydration, sleep deprivation/disorders,	Primary Dx: Did not commit DDx: Infection (pneumonia/TB/fungal infection/atypical infection), heart failure, malignancy, stroke/TIA, metabolic abnormalities, drug side effect, kidney dysfunction, hypothyroidism	Primary Dx: Did not commit DDx: Infection (pneumonia/TB/fungal infection/atypical infection), heart failure, malignancy, stroke/TIA, metabolic abnormalities, drug side effect, Ix: CBC/electrolytes/LFT/RFT/glucose/TF	Primary Dx: CNS infection (meningitis/encephalitis) (bacterial meningitis/ TB meningitis/ viral encephalitis/ fungal meningitis/ neurocysticercosis /toxoplasmosis) DDx: Vasculitis/vasculopathy, autoimmune/inflammatory disorder, cerebral metastasis/parane	Y	Y	10 [5 + 3 + 2]	16 [(5x2) + 4 + 2]	Y

		markers	neurological disorders (Parkinson's disease/MS), psychiatric disorders	Ix: CBC/electrolytes/LFT/RFT/glucose/TFT/ESR/CRP/blood culture, urinalysis, CXR/CT-thorax, echocardiogram, CT/MRI brain, LP, PET-CT, biopsy if necessary	T/ESR/CRP/blood culture, urinalysis, CXR/CT-thorax, echocardiogram, CT/MRI brain, LP, PET-CT, biopsy if necessary	oplastic syndrome						
29.	Case 5-2021: A 68-Year-Old Man with Delirium and Renal Insufficiency ⁴²	Primary Dx: Disseminated <i>M. bovis</i> infection Ix: sputum for acid fast bacilli smear and culture & molecular-beacon testing	Primary Dx: metastatic malignancy DDx: sarcoidosis, lymphoma, vasculitis, cerebral cavernous malformation, infection process Ix: consult rheumatologist/microbiologist	Primary Dx: SLE DDx: vasculitis, CKD, multiple myeloma, Sjogren's syndrome, paraneoplastic syndrome, hematological malignancy	Primary Dx: paraneoplastic syndrome DDx: sarcoidosis, vasculitis, SLE, hematological malignancy, infections (IE, sepsis, atypical infections), neurological disorders (MS, GBS) Ix: CSF analysis, paraneoplastic autoantibodies,	Primary Dx: did not commit DDx: vasculitis, systemic infection, malignancy, autoimmune disease Ix: Serology for vasculitis/infection, PET-CT, bone marrow exam, CSF analysis, biopsy of abnormal tissues, consult hematology/rheumatology/microbiology/neurology	Primary Dx: multiple myeloma DDx: lymphoma, CNS vasculitis/autoimmunity, infection (JC virus, HSV, TB, Cryptococcus, HHV-6, CMV, Nocardia, histoplasmosis, coccidioidomycosis, neurocysticercosis, toxoplasmosis) Ix: bone marrow exam, serum	N	N	7 [4 + 3]	6 [4 + 2]	Y

					CT-thorax/abdomen/pelvis, MRI brain and spinal cord, NCV/EMG, consult neurologist/oncologist		protein electrophoresis/immunofixation/free light chain, biopsy, CSF analysis, blood/sputum culture/PCR, autoimmune panel						
30.	Case 7-2021: A 19-Year-Old Man with Shock, Multiple Organ Failure, and Rash ⁴³	Primary Dx: <i>N. meningitidis</i> bacteremia Ix: Blood culture	Primary Dx: Systemic inflammatory response syndrome due to infection DDx: Toxic shock syndrome, meningococemia, leptospirosis, Rocky Mountain spotted fever Ix: Blood culture, LP, skin biopsy, procalcitonin/coagulation studies/serology for infectious agents, CT-thorax	Primary Dx: Septic shock DDx: toxic shock syndrome, meningococemia, SJS/TEN, anaphylaxis	N/A, patient first presented to the author’s hospital for his/her chief complaint.	Primary Dx: Meningococemia DDx: septic shock, toxic shock syndrome, anaphylaxis, SJS/TEN Ix: LP, PCR for <i>N. meningitidis</i> , serology for other virus/bacteria, skin biopsy if appropriate	Primary Dx: Meningococemia DDx: Septic shock, toxic shock syndrome, anaphylaxis, SJS/TEN Ix: Blood culture, LP, PCR for <i>N. meningitidis</i> , serology for other virus/bacteria, skin biopsy if appropriate	Y	Y	6 [(3x2)]	10 [(5x2)]	Y	
31.	Case 11-2021: A 39-Year-Old Woman with Fever, Flank Pain, and Inguinal Lymphadenopathy ⁴⁴	Primary Dx: <i>Bartonella henselae</i> infection Ix: A right inguinal LN biopsy and	Primary Dx: Disseminated gonococcal infection DDx: Pelvic inflammatory disease, tubo-ovarian abscess	Primary Dx: Did not commit DDx: Pyelonephritis, renal colic, diverticulitis, ovarian torsion,	Primary Dx: Pyelonephritis DDx: TB, <i>Bartonella henselae</i> infection, intrauterine	Primary Dx: Pyelonephritis/complicated UTI DDx: TB, <i>Bartonella henselae</i> infection, intrauterine device	Primary Dx: Pyelonephritis/complicated UTI DDx: TB, intrauterine device complication,	N	Y	0	8 [4 + (2x2)]	Y	

		serologic testing for B. henselae	Ix: Blood culture, joint aspiration, CT/USG, testing for STD, consult microbiologist/gynecologist	ectopic pregnancy, pelvic inflammatory disease	device complication	complication	<i>Bartonella henselae</i> infection					
					Ix: CBC, urinalysis, blood culture, CXR, USG for abdomen/pelvis, serology for <i>Bartonella henselae</i>	Ix: CBC, urinalysis, blood culture, CXR, USG for abdomen/pelvis, serology for <i>Bartonella henselae</i>	Ix: CBC, urinalysis, blood culture, CXR, USG for abdomen/pelvis, tuberculosis testing, serology for <i>Bartonella henselae</i>					
32.	Case 12-2021: A 78-Year-Old Man with a Rash on the Scalp and Face ⁴⁵	Primary Dx: VZV infection. Ix: Skin biopsy with VZV immunohistochemical stain	Primary Dx: Zoster ophthalmicus DDx: Bacterial cellulitis, allergic contact dermatitis, other viral infection (HSV), impetigo Ix: PCR for VZV, ophthalmologic evaluation, CBC/electrolyte/viral serology	Primary Dx: Zoster ophthalmicus DDx: Cellulitis, allergic contact dermatitis, insect bites/stings, pre-septal/orbital cellulitis, angioedema	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Zoster ophthalmicus DDx: Cellulitis, allergic contact dermatitis, pre-septal/orbital cellulitis, fungal infection Ix: Tzanck smear, PCR for zoster, CBC, blood culture, skin swab culture	Primary Dx: Zoster ophthalmicus DDx: Cellulitis, pre-septal/orbital cellulitis, allergic contact dermatitis, fungal infection Ix: Tzanck smear, PCR for zoster, CBC, blood culture, skin swab culture	Y	Y	14 [(5x2) + 4]	17 [(5x2) + 4 + 3]	Y
33.	Case 14-2021: A 64-Year-Old Woman with Fever and	Primary Dx: Babesiosis possibly complicated by hemophagocytosis	Primary Dx: Primary myelofibrosis DDx: MDS, chronic	Primary Dx: Infection/hematological malignancy	Primary Dx: Lyme disease DDx: Infections	Primary Dx: Autoimmune hemolytic anemia (suggestive of cold	Primary Dx: Autoimmune hemolytic anemia (suggestive of cold agglutinin	N	Y	3 [3]	13 [(4x2) + 3 + 2]	Y

Pancytopenia ⁴⁶	c lymphohistiocytosis	myeloid leukemia, acute myeloid leukemia	DDx: Autoimmune (SLE/RA), aplastic anemia, bone marrow infiltration (metastasis/granulomatous disease like sarcoidosis), drug-induced, nutritional deficiency (vitamin B12/folate)	(viral/bacterial/fungal/parasitic), hematological malignancy (leukemia/MDS/lymphoma), aplastic anemia, autoimmune disorders (SLE/RA), drug-induced, marrow infiltration, nutritional deficiency	agglutinin disease)	disease)					
	Ix: Peripheral blood smear	Ix: Bone marrow exam, molecular testing for MPN and other malignancy, cytogenetic analysis, flow cytometry for hematological malignancy, core needle/excisional LN biopsy		Ix: CBC/peripheral blood smear, blood culture, serology for Lyme disease, tick-borne illness tests (Anaplasmosis, Babesiosis), nutrition level (vitamin B12/folate/iron), one marrow biopsy, autoimmune markers, LFT/metabolic panel	Ix: Cold agglutinin, blood cultures, serology for tick-borne illness, autoimmune markers, flow cytometry for lymphoproliferative disorders, bone marrow exam, CXR/CT-thorax	DDx: Infections (viral/bacterial/fungal/parasitic/tick-borne illness), hematological malignancy (leukemia/MDS/lymphoma), autoimmune disorders (SLE/RA), drug-induced, marrow infiltration, nutritional deficiency Ix: Cold agglutinin, blood cultures, serology for tick-borne illness, autoimmune markers, flow cytometry for lymphoproliferative disorders, bone marrow exam, CXR/CT-thorax					
34.	Case 16-2021: A 37-Year-Old	Primary Dx: Mycotic	Primary Dx: Mycotic	Primary Dx: IE	Primary Dx: IE with infected aortic	Primary Dx: Infected aortic	Y	Y	13	12	Y

	Woman with Abdominal Pain and Aortic Dilatation ⁴⁷	aneurysm, potentially in the context of underlying vascular injury or vasculitis	aneurysm	Did not commit	aneurysm	aneurysm				[(5x2) + 3]	[(5x2) + 2]	
		Ix: Blood culture	DDx: Atherosclerosis/connective tissue disorder, aortitis Ix: blood culture, echocardiography, test for infective endocarditis/EBV/HCV/other bloodborne pathogens, consult rheumatology	DDx: Gastroenteritis, reflux disease, IBS, peptic ulcer, gallstone, appendicitis, diverticulitis, UTI, kidney stone, ovarian cysts/torsion, ectopic pregnancy, pelvic inflammatory disease, endometriosis Ix: Blood culture, echocardiography, CT/MRI angiography of abdomen/pelvis, serology for autoimmune/inflammatory conditions, CBC/coagulation profile/LFT/RF T/ESR/CRP	DDx: IE with infected aortic aneurysm, aortic dissection, intra-abdominal infection/abscesses, acute/chronic mesenteric ischemia, peri-aortitis Ix: Blood culture, echocardiography, CT/MRI angiography of abdomen/pelvis, serology for autoimmune/inflammatory conditions, CBC/coagulation profile/LFT/RF T/ESR/CRP	DDx: Aortic dissection, intra-abdominal infection/abscess, acute/chronic mesenteric ischemia, peri-aortitis Ix: Blood culture, echocardiography, CT/MRI angiography of abdomen/pelvis, serology for autoimmune/inflammatory conditions, CBC/coagulation profile/LFT/RF T/ESR/CRP						
35.	Case 18-2021: An 81-Year-Old Man with Cough, Fever, and Shortness of Breath ⁴⁸	Primary Dx: Pneumonia associated with COVID and acute pulmonary embolism	Primary Dx: Pneumonia complicated by COVID DDx: MI, PE, COPD exacerbation Ix: PCR testing, ABG, CTPA,	Primary Dx: COVID DDx: Bacterial pneumonia, influenza, , heart failure, COPD exacerbation,	N/A, patient first presented to the author’s hospital for his/her chief complaint.	Primary Dx: COVID DDx: Bacterial pneumonia, influenza, heart failure, COPD exacerbation, PE, pleura	Primary Dx: COVID	Y	Y	13 [(5x2) + 3]	11 [(5x2) + 1]	Y

		Ix: NPS for SARS-CoV-2 RNA and CT pulmonary artery	echocardiography, blood tests for inflammatory markers/ cardiac enzymes/coagulation profile, blood culture, CT brain	PE		inflammation/infection Ix: COVID test, CXR/CT-thorax, CBC, blood culture, ABG, D-dimer/troponin/NP	echocardiogram, CT-thorax/CXR, monitor sepsis					
36.	Case 21-2021: A 33-Year-Old Pregnant Woman with Fever, Abdominal Pain, and Headache ⁴⁹	Primary Dx: Listeria infection Ix: Blood culture	Primary Dx: appendicitis DDx: IBD exacerbation, migraine, gastroenteritis, pyelonephritis, cholecystitis Ix: CT abdomen, CBC/CRP/ESR/LFT/RFT, stool for <i>C. difficile</i> , obstetric USG, consult gastroenterologist	Primary Dx: Ulcerative colitis flare DDx: Pregnancy-related complication (ectopic pregnancy/miscarriage/hyperemesis gravidarum), infections (gastroenteritis/UTI/sepsis), intestinal obstruction, pre-eclampsia, migraine	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Ulcerative colitis DDx: Gastrointestinal infection (bacterial/ <i>C. difficile</i>), pregnancy-related complication (hyperemesis gravidarum), bowel obstruction, pre-eclampsia Ix: CBC/CRP/LFT/RFT stool test for <i>C. difficile</i> , USG/CT abdomen, sigmoidoscopy/colonoscopy	Primary Dx: Ulcerative colitis flare DDx: Infections (bacterial gastroenteritis/ <i>C. difficile</i>), bowel obstruction, pregnancy-related complication (hyperemesis gravidarum), pre-eclampsia Ix: CBC/LFT/RFT/CRP/ESR, stool test for <i>C. difficile</i> , USG/CT abdomen, sigmoidoscopy/colonoscopy	N	N	4 [4]	5 [5]	N
37.	Case 23-2021: A 41-Year-Old Woman with Bloody Stools	Primary Dx: CMV induced ITP	Primary Dx: TTP	Primary Dx: thrombotic microangiopathy	Primary Dx: post-transplant lymphoprolifera	Primary Dx: GI bleed	Primary Dx: TTP DDx: ITP (viral infections,	N	Y	0	10 [(4x2) +	Y

	and Thrombocytopenia ⁵⁰	Ix: Blood for CMV DNA	DDx: Graft rejection, hemorrhagic colitis, infectious colitis	y (TTP/HUS)	tive disorder	DDx: Post-transplant lymphoproliferative disorder, infectious cause (CMV colitis/ <i>C. difficile</i> colitis/ other infections), drug-induced thrombocytopenia, thrombotic microangiopathy	DDx: Post-transplant lymphoproliferative disorder, infectious cause (CMV colitis/ <i>C. difficile</i> colitis/ other infections), drug-induced thrombocytopenia, thrombotic microangiopathy, peptic ulcer	medication, post-transplant complication idiopathic), HUS, drug-induced thrombocytopenia , DIC, post-transplant complication (GVHD/rejection) , infections (CMV/EBV), SLE, anti-phospholipid syndrome				2]
			Ix: ADAMTS13 activity and inhibitor testing, coagulation studies, renal imaging (USG/Doppler), infectious workup (CMV antigen/PCR)		Ix: CBC/LFT/RFT/ electrolyte, stool test for <i>C. difficile</i> / CMV, CT/MRI abdomen, endoscopy (OGD/CLN), EBV and CMV PCR, peripheral blood smear, LDH and haptoglobin, ADAMTS13, renal biopsy	Ix: CBC/LFT/RFT/electrolyte/coagulation profile, stool test for <i>C. difficile</i> / CMV, CT/MRI abdomen, endoscopy (OGD/CLN), EBV and CMV PCR, peripheral blood smear, LDH and haptoglobin, ADAMTS13		Ix: ADAMTS13 activity, blood culture, viral serology (CMV/EBV), autoimmune panel, renal biopsy, bone marrow exam, review medication list				
38.	Case 24-2021: A 63-Year-Old Woman with Fever, Sore Throat, and	Primary Dx: Acute HIV-1 infection	Primary Dx: Neurosyphilis	Primary Dx: Bacterial meningitis	N/A, patient first presented to the author’s hospital for his/her chief complaint.	Primary Dx: Neurosyphilis	Primary diagnosis: Neurosyphilis	N	N	12	14	Y
			DDx: Viral			DDx: Bacterial/viral	DDx: Viral			[5 + 4 + 3]	[5 + 4 + 3 + 2]	

Confusion ⁵¹		Ix: Blood for immunoassay for HIV-1 and HIV-2 and RNA	encephalitis (HSV/VZV/EBV/CMV/enterovirus), other infectious causes (bacterial/fungal meningitis), autoimmune/inflammatory disorders (SLE/vasculitis)	DDx: Influenza, viral meningitis, encephalitis, sepsis, COVID, infectious mononucleosis	meningitis, encephalitis, sepsis, subacute thyroiditis, COVID, infectious mononucleosis, temporal arteritis	meningitis/encephalitis, Lyme disease, bacterial meningitis, TB meningitis, disseminated fungal infection (Cryptococcus), sarcoidosis, vasculitis						
			Ix: Syphilis serology, CSF analysis, HIV testing, MRI brain		Ix: CBC/ESR/CRP, blood culture, syphilis test, TFT, CXR, CT/MRI brain, serology for EBV/HIV/Lyme disease	Ix: Syphilis test, serology for Lyme disease, CSF for AFB smear/TB culture, cryptococcus, serology for EBV/HIV/CMV, ACE level, autoimmune/vasculitis testing						
39.	Case 31-2021: A 21-Year-Old Man with Sore Throat, Epistaxis, and Oropharyngeal Petechiae ⁵²	Primary Dx: Severe aplastic anemia in the presence of infection with COVID. Ix: Bone marrow examination	Primary Dx: Severe aplastic anemia DDx: Paroxysmal nocturnal hemoglobinuria, acute leukemia, drug-induced marrow suppression Ix: Bone marrow examination, cytogenetic analysis, HLA typing, viral serology (hepatitis/EBV), hemoglobin electrophoresis	Primary Dx: Infectious mononucleosis/streptococcal pharyngitis DDx: Thrombocytopenia (including ITP), leukemia	Primary Dx: ITP DDx: Infectious mononucleosis, TTP/HUS, leukemia, viral infection (HIV/hepatitis) Ix: CBC/peripheral blood smear/coagulation profile, testing for streptococcal pharyngitis, monospot	Primary Dx: Aplastic anemia DDx: ITP, MDS, hematological malignancy, paroxysmal nocturnal hemoglobinuria, viral infections (HIV/hepatitis/EBV) Ix: Bone marrow exam, reticulocyte count, serology for EBV/HIV/hepatitis, flow cytometry for paroxysmal	Primary Dx: Aplastic anemia DDx: Viral marrow suppression (COVID/parvovirus B19/EBV/CMV/HIV), acute leukemia, HLH, MDS, ITP Ix: Bone marrow exam, flow cytometry/cytogenetic analysis for leukemia/MDS, serology for	Y	Y	14 [(5x2) + 4]	14 [(5x2) + 4]	Y

					test/EBV serology, testing for HIV/hepatitis, bone marrow exam	nocturnal hemoglobinuria, Coombs' test, CXR/CT-thorax, sickle cell trait evaluation	EBV/CMV/HIV/p arvovirus B19, autoimmune antibodies testing, HLA typing and screening for Fanconi anemia					
40.	Case 34-2021: A 38-Year-Old Man with Altered Mental Status and New Onset of Seizures ⁵³	Primary Dx: Neurocysticercosis Ix: Blood for cysticercal antibodies	Primary Dx: Metabolic disturbance (such as metabolic acidosis) DDx: Toxic encephalopathy, CNS infections (meningitis/encephalitis/cerebral abscess/neurocysticercosis/TB/syphilis/Lyme disease), autoimmune encephalopathy, renal disease, structural brain lesion Ix: LP, CT/MRI brain, toxicology screen, metabolic/electrolyte panel, autoimmune testing, infectious disease workup (serology/cultures)	Primary Dx: Did not commit DDx: Epilepsy, infection (meningitis/encephalitis), metabolic disturbance (hypoglycemia/sodium imbalance), stroke, toxic/metabolic encephalopathy (drug overdose, alcohol withdrawal), brain tumor, autoimmune/paraneoplastic encephalitis, traumatic brain injury	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Did not commit DDx: Infection (meningitis/encephalitis), stroke, toxic/metabolic encephalopathy, brain tumor, autoimmune/paraneoplastic encephalitis, epilepsy, electrolyte imbalance Ix: CBC/electrolyte/LFT/RFT/blood culture/ESR/CRP, LP, CT/MRI brain, EEG, toxicology screen	Primary Dx: CNS infection (in particular neurocysticercosis/strongyloidiasis) DDx: Metabolic causes/sepsis, space occupying lesion, toxic/drug-induced Ix: LP, CT/MRI brain, EEG, blood culture/infectious disease workup	Y	Y	6 [(3x2)]	13 [(5x2) + 3]	Y
41.	Case 35-2021: A 50-Year-Old	Primary Dx:	Primary Dx:	Primary Dx: Splenic	N/A, patient first presented	Primary Dx:	Primary Dx: Sarcoidosis with	N	Y	9	16	Y

	Woman with Pain in the Left Upper Quadrant and Hypoxemia ⁵⁴	PJP pneumonia Ix: Bronchoscopy with BAL for fluid for microscopic examination	Sarcoidosis DDx: Infection (atypical/opportunistic), lymphoma, GPA, SLE/RA Ix: Bronchoscopy with BAL, trans-bronchial lung biopsy if diagnosis remains unclear, serology for autoimmune disease/vasculitis, PET-CT, consult rheumatologist	infarction DDx: Pneumonia, PE, pleural effusion, gastritis/peptic ulcer	to the author’s hospital for his/her chief complaint.	Sarcoidosis DDx: Splenic infarction, pneumonia, pulmonary sarcoidosis, PE Ix: CT-thorax, CT/USG abdomen, ABG, CBC/electrolyte/LFT, D-dimer	possible pulmonary involvement DDx: Bacterial pneumonia, drug-induced lung injury, atypical pneumonia, fungal infection, TB, autoimmunity, lymphoproliferative disorder Ix: Sputum culture, BAL, antibody/antigen testing for fungal infection, repeat IGRA, serology for atypical pathogen (mycoplasma/chlamydia), HRCT, VATS/lung biopsy if diagnosis remain uncertain, monitor CRP/ESR			[5 + 4]	[5 + 4 + 3 + 2 + (1x2)]	
42.	Case 36-2021: A 22-Year-Old Man with Pain and Erythema of the Left Hand ⁵⁵	Primary Dx: Erysipeloid due to <i>Erysipelothrix rhusiopathiae</i> infection	Primary Dx: Necrotizing fasciitis DDx: Cellulitis, paronychia, DVT	Primary Dx: Cellulitis DDx: Abscess, felon, septic arthritis,	N/A, patient first presented to the author’s hospital for his/her chief complaint.	Primary Dx: Tick-borne infection (Lyme disease/Ehrlichiosis/Anaplasmosis/Rocky Mountain spotted	Primary Dx: Tick-borne infection DDx: Bacterial skin/soft tissue infection	N	N	4 [4]	4 [4]	Y

		Ix: Skin biopsy for microbiological examination	Ix: Surgical exploration, tissue biopsy, blood culture, MRI of affected area, consult microbiologist	necrotizing fasciitis, superficial thrombophlebitis, insect/spider bite, complex regional pain syndrome		fever)	(cellulitis/abscess), necrotizing fasciitis					
						DDx: Bacterial skin/soft tissue infection (cellulitis/abscess), necrotizing fasciitis	Ix: Serology for tick-borne infection, XR hand, USG hand, bullae aspiration, skin biopsy					
						Ix: CBC/ESR/CRP/blood culture/serology for tick-borne infection, XR hand, USG hand, bullae aspiration, skin biopsy						
43.	Case 4-2022: A 55-Year-Old Man with Bilateral Hearing Loss and Eye Redness ⁵⁶	Primary Dx: Syphilis Ix: Serologic testing for syphilis	Primary Dx: Susac's syndrome DDx: Behçet's disease, MS Ix: MRI brain, fluorescein angiography, audiometry, LP, consult rheumatologist/neurologist	Primary Dx: Susac's syndrome DDx: GPA, Cogan's syndrome, sarcoidosis, infection (Lyme disease/syphilis), drug-induced	Primary Dx: Cogan's syndrome DDx: GPA, sarcoidosis, infections (Lyme disease, syphilis), Susac's syndrome Ix: Slit-lamp examination, ESR/CRP/autoantibodies, CXR/CT-thorax, ACE	Primary Dx: Cogan's syndrome DDx: GPA, sarcoidosis, infections (Lyme disease, syphilis), Susac's syndrome Ix: Slit-lamp examination, ESR/CRP/autoantibodies, CXR/CT-thorax, ACE level, possible biopsy, serology for Lyme disease/syphilis,	Primary Dx: Cogan's syndrome DDx: GPA, sarcoidosis, infections (Lyme disease, syphilis), Susac's syndrome Ix: Slit-lamp examination, ESR/CRP/autoantibodies, CXR/CT-thorax, ACE level, possible biopsy, serology for Lyme	N	Y	0	17	Y
											[5 + 4 + 3 + (2x2)]	

					level, possible biopsy, serology for Lyme disease/syphilis, MRI brain	MRI brain	disease/syphilis, MRI brain					
44.	Case 9-2022: A 56-Year-Old Woman with Fever, Myalgias, Diarrhea, and Cough ⁵⁷	Primary diagnosis: Tick-borne infection most consistent with Anaplasmosis. Investigations: Detection of <i>A. phagocytophilum</i> DNA in the blood by means of real-time polymerase-chain-reaction analysis and DNA hybridization	Primary Dx: COVID DDx: Atypical pneumonia (mycoplasma/chlamydia), influenza/other respiratory viral infection, pneumonia Ix: Repeat COVID testing, serology for COVID, respiratory pathogen panel, HRCT, consult microbiologist	Primary Dx: COVID DDx: Influenza, pneumonia (bacterial/viral), acute bronchitis, gastroenteritis	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: COVID DDx: Influenza, pneumonia (bacterial/viral), acute bronchitis, gastroenteritis Ix: COVID testing, CBC/CRP/ESR, CXR/CT-thorax, blood culture, influenza testing	Primary Dx: Atypical presentation of COVID DDx: Atypical pneumonia (Mycoplasma/Chlamydia/Legionella), viral infections (influenza/parainfluenza/adenovirus), non-infectious (connective tissue disease/vasculitis/drug-induced) Ix: COVID testing, serology for other infections, rheumatologic workup, HRCT	N	N	8 [5 + 3]	12 [5 + 4 + 3]	N
45.	Case 13-2022: A 56-Year-Old Man with Myalgias, Fever, and Bradycardia ⁵⁸	Primary Dx: Regional myocarditis due to infection with <i>Listeria monocytogene</i>	Primary Dx: Cardiac sarcoidosis DDx: IE, Lyme disease, TB, Whipple's disease, rheumatologic	Primary Dx: Did not commit DDx: Viral infections (influenza/dengue), bacterial	Primary Dx: Lyme disease DDx: Viral infection (influenza/parvovirus)	Primary Dx: Lyme disease DDx: Viral infection (other than COVID), bacterial infection (Q	Primary Dx: IE DDx: Lyme carditis, sarcoidosis, myocarditis, autoimmune/infla	N	Y	7 [4 + 2 + 1]	9 [5 + (2x2)]	N

		Ix: Microbial cell-free DNA sequencing performed of the endomyocardial biopsy specimen	conditions (SLE/vasculitis) Ix: Echocardiography, endomyocardial biopsy, serology for Lyme disease/TB/Whipple's disease, autoimmune workup, PET-CT, consult microbiologist/rheumatologist	infection (Lyme disease), autoimmune disease (SLE/RA/poly myalgia rheumatica), inflammatory myopathies (polymyositis/dermatomyositis)	B19/EBV), autoimmune/inflammatory disorders (Polymyalgia rheumatica/RA/SLE), reactivation infection (TB/malaria/HBV), endocarditis	fever/brucellosis/Anaplasmosis), parasitic infections (reactivation/new infection), autoimmune/inflammatory conditions (RA or other arthropathies), malignancy (e.g. lymphoma)	mmatory condition (SLE/RA), pericarditis Ix: Blood culture, echocardiography, lymph node biopsy, serology for infections, ACE level, CT-thorax					
					Ix: Lyme disease serology, ESR/CRP, viral serology, autoimmune markers, blood culture, CBC, CT/MRI scan	Ix: Lyme disease serology, CBC/ESR/CRP/blood culture, rheumatologic workup, CT thorax/abdomen/pelvis, serology for other infections						
46.	Case 22-2022: A 34-Year-Old Woman with Cavitary Lung Lesions ⁵⁹	Primary Dx: Blastomycosis. Ix: Bronchoscopy with BAL	Primary Dx: Pulmonary histoplasmosis DDx: Pneumonia, PCP, fungal (coccidiomycosis/Blastomycosis), opportunistic infections (Cryptococcus) Ix: Bronchoscopy, serology for histoplasmosis, blood	Primary Dx: Ectopic ACTH secretion (from neuroendocrine tumor) DDx: Cushing syndrome, adrenal gland tumor, iatrogenic hypercortisolism, pituitary adenoma	Primary Dx: Ectopic ACTH secretion (from neuroendocrine tumor) DDx: Incomplete resection of pituitary lesion, recurrence of pituitary lesion Ix: MRI pituitary gland, ACTH level,	Primary Dx: Ectopic ACTH secretion (from neuroendocrine tumor) DDx: Incomplete resection of pituitary lesion, recurrence of pituitary lesion Ix: ACTH level, ACTH stimulation test, Octreotide scan/68-Ga-	Primary Dx: Disseminated histoplasmosis DDx: Bacterial pneumonia, fungal pneumonia (aspergillosis/cryptococcosis/Blastomycosis/coccidioides/PCP), TB Ix: Histoplasma serology, fungal	N	Y	13 [5 + 4 + (2x2)]	17 [5 + 4 + (3x2) + 2]	Y

			culture, PCR for specific pathogens, HRCT, consult microbiologist		Octreotide scan/68-Ga-DOTATATE PET-CT, ACTH stimulation test	DOTATATE PET-CT, bronchoscopy with BAL	culture from BAL/tissue samples, TB testing					
47.	Case 25-2022: A 25-Year-Old Woman with Headache and Blurred Vision ⁶⁰	Primary Dx: Candida meningitis. Ix: CSF for fungal culture and a fungal wet preparation and whole genome sequencing	Primary Dx: Leptomeningeal carcinomatosis DDx: Meningitis, metastatic disease, neurosarcoidosis, lymphoma Ix: Repeat CSF analysis, tumor markers, biopsy, PET-CT, genetic testing for inherited cancer syndrome, consult neurologist/oncologist	Primary Dx: Chronic migraines DDx: Meningitis, brain tumor, pseudotumor cerebri, temporal arteritis, sinusitis	Primary Dx: Did not commit DDx: Pseudotumor cerebri, migraine, meningitis, brain tumor Ix: CT/MRI brain, LP, fundoscopic exam, CBC/metabolic panel	Primary Dx: Brain tumor DDx: Pseudotumor cerebri, meningitis, cerebral venous sinus thrombosis Ix: MRI brain, LP, CBC/metabolic panel, cerebral venous sinus imaging	Primary Dx: Infectious meningitis (bacterial/viral/fungal/TB) DDx: Neoplastic meningitis, neurosarcoidosis, CNS vasculitis, intracranial hypotension Ix: CSF culture for bacteria/fungal/mycobacteria, CSF PCR for virus (enterovirus/HSV/VZV/CMV/EBV), CSF cytology for malignancy, ACE level, autoimmune markers, meningeal biopsy if necessary	Y	Y	10 [(4x2) + 2]	13 [(5x2) + 3]	Y
48.	Case 37-2022: A 55-Year-Old Man with Fatigue, Weight	Primary Dx: TB (most likely donor-derived infection)	Primary Dx: Disseminated TB with miliary pulmonary involvement and renal	Primary Dx: infection (TB/Nocardia/fungal)	N/A, patient first presented to the author's hospital for	Primary Dx: Infection (bacterial/viral/fungal/TB/Nocardia/CM	Primary Dx: Disseminated fungal infection (histoplasmosis/cr	N	Y	17 [(5x2) + 4 + 3]	17 [5 + (4x2) + 3]	Y

Loss, and Pulmonary Nodules ⁶¹		Ix: Sputum for TB-PCR, acid fast bacilli smear and culture	tuberculosis	DDx: Post-transplant lymphoproliferative disorder, malignancy, drug-induced lung injury (immunosuppressive medication), rejection, non-specific interstitial pneumonitis	his/her chief complaint.	V)	yptococcosis/aspe rgillosis)	+ 1]				
			DDx: Disseminated fungal infection (histoplasmosis/cryptococcosis), disseminated viral infection, disseminated malignancy			DDx: Post-transplant lymphoproliferative disorder, malignancy, drug-induced lung injury (immunosuppressive medication), rejection, non-specific interstitial pneumonitis	DDx: Disseminated bacterial infection (TB/Nocardia), viral infection (CMV/EBV), parasitic infection (toxoplasmosis), non-infectious cause (drug-induced pneumonitis/sarco idosis/rejection)					
			Ix: TB workup from sputum/blood/urine, IGRA/Tuberculin skin test, CXR/CT-thorax, lung biopsy, renal biopsy, evaluate drug toxicity, CBC/blood chemistry, consult microbiologist/nephrologist			Ix: Blood culture, sputum culture, CXR/CT-thorax, bronchoscopy with BAL, serology for (CMV/EBV), biopsy of pulmonary nodule, RFT/CBC/LFT/coa gulation profile	Ix: Blood culture, sputum culture, bronchoscopy with BAL, serology for (CMV/EBV), PCR for TB/CMV/EBV, biopsy of pulmonary nodule, transplanted kidney biopsy					
49.	Case 5-2023: A 67-Year-Old Man with Interstitial Lung Disease, Fever, and Myalgias ⁶²	Primary Dx: Anaplasmosis.	Primary Dx: COVID	Primary Dx: Influenza	N/A, patient first presented to the author’s hospital for his/her chief complaint.	Primary Dx: Pneumonia	Primary Dx: Bacterial infection (pneumonia/sepsis)	N	N	1	9	N
		Ix: Nucleic acid amplification testing (NAAT)	DDx: Infection-related complication, drug-induced liver injury, ILD disease	DDx: COVID, gastroenteritis, pneumonia, TI,		DDx: Influenza, COVID, organizing pneumonia, ILD	DDx: Fungal			[1]	[5 + 4]	

		of whole blood	progression, other infection (viral/atypical bacteria)	cellulitis, meningitis, sepsis		exacerbation, PE, heart failure	infection (aspergillosis/histoplasmosis), drug-induced fever/ side effect, autoimmune/inflammatory condition, viral infection					
			Ix: Blood/urine culture, serology for virus/atypical bacteria, autoimmune workup, liver biopsy, consult pulmonologist/microbiologist/rheumatologist			Ix: CXR/CT-thorax, blood culture/CBC/CRP/procalcitonin/ABG, COVID/flu testing, D-Dimer, electrolyte/LFT/RFT, urinalysis	Ix: Procalcitonin, blood culture and fungal culture, BAL, serology for fungal infection, CXR/CT-thorax, echocardiography					
50.	Case 7-2023: A 70-Year-Old Man with Covid-19, Respiratory Failure, and Rashes ⁶³	Primary Dx: Mucormycosis Ix: Skin biopsy for microbiological work-up and genomic sequencing	Primary Dx: Severe pneumonia (<i>S pneumoniae</i>) with sepsis, respiratory failure, cutaneous manifestation DDx: DIC secondary to infection/sepsis, cutaneous vasculitis/necrotizing fasciitis, PE, opportunistic infection (fungal/viral) Ix: CT-thorax, CTPA, lower limb USG for DVT, blood culture/	Primary Dx: Drug reaction DDx: Infection (viral or fungal infection apart from pneumococcal bacteremia), immune-mediated reaction (GVHD), vasculitis (Henoch-Schonlein purpura/ leukocytoclastic vasculitis), erythema	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Pneumococcal pneumonia with sepsis DDx: COVID, intra-abdominal infection, ANCA-associated vasculitis flare Ix: Blood/urine culture, CXR/CT-thorax, NPS for COVID, USG/CT abdomen, RFT/electrolyte, ANCA/Anti-MPO titers	Primary Dx: COVID and <i>S pneumoniae</i> bacteremia and renal allograft rejection DDx: Drug reaction, invasive fungal infection (aspergillosis, candidiasis, Cryptococcus, Mucormycosis), bacterial skin infection, vasculitis flare Ix: Skin biopsy	N	Y	5 [5]	11 [5 + (3x2)]	Y

urine Legionella antigen test, NPS and sputum for respiratory virus panel/ atypical bacteria (mycoplasma/chlamydia/legionella), coagulation profile, consult microbiologist/dermatologist

multiforme

and culture, fungal markers, repeat imaging, blood culture

Rheumatology

1.	Case 20-2018: A 64-Year-Old Man with Fever, Arthralgias, and Testicular Pain ⁶⁴	Primary Dx: Polyarteritis nodosa	Primary Dx: Disseminated TB	Primary Dx: Epididymitis/orchitis	Primary Dx: Disseminated TB	Primary Dx: Disseminated TB	Primary Dx: Epididymo-orchitis	N	N	7 [5 + 2]	7 [4 + 3]	Y
		Ix: Testicular biopsy	DDx: Atypical pneumonia, IE, SLE, vasculitis Ix: Mycobacterial workup (AFB smear, culture, IGRA, tuberculin skin test), blood culture, autoimmune workup, pleural fluid workup, CT-guided biopsy, ophthalmologic evaluation, consult rheumatologist, PET-CT, urine culture	DDx: Diverticulitis, infective arthritis, intra-abdominal abscess, pyelonephritis, endocarditis, Lyme disease	DDx: Epididymitis/orchitis, intra-abdominal abscess, infectious arthritis/osteomyelitis, endocarditis Ix: CBC/LFT/CRP/ESR/HBV markers, CXR/CT-thorax, USG/CT abdomen, testicular USG, blood/sputum culture, IGRA,	DDx: Epididymitis/orchitis, intra-abdominal abscess, infectious arthritis/osteomyelitis, endocarditis Ix: CBC/LFT/CRP/ESR/HBV markers, CXR/CT-thorax, USG/CT abdomen, testicular USG, blood/sputum culture, IGRA, echocardiography, lumbar spine imaging	DDx: Systemic inflammatory/autoimmune disorder (such as SLE), atypical infections (STD/ enteric bacteria/ TB/fungus/viral), malignancy Ix: Blood/urine culture, scrotal aspiration/culture, ESR/CRP, medication review, testicular biopsy if diagnosis remained uncertain					

					echocardiography							
2.	Case 39-2018: An 18-Year-Old Man with Diplopia and Proptosis of the Left Eye ⁶⁵	Primary Dx: Primary orbital inflammation, most likely granulomatosis with polyangiitis, although sarcoidosis and IgG4-related disease cannot be ruled out Ix: Pathological examination of the abnormal tissue	Primary Dx: Orbital pseudotumor DDx: Thyroid eye, lymphoproliferative disorder, cellulitis Ix: Orbital biopsy, CBC/ESR/CRP/ANA/RF, MRI orbit, TFT test, consult ophthalmologist/rheumatologist	Primary Dx: Did not commit DDx: Orbital cellulitis, thyroid eye, orbital tumor, orbital pseudotumor, cavernous sinus thrombosis	Primary Dx: Did not commit DDx: Orbital pseudotumor, thyroid eye, IgG4-related disease Ix: MRI orbit, IgG4 level, TFT/thyroid antibodies, orbital biopsy	Primary Dx: Did not commit DDx: Orbital pseudotumor, thyroid eye, IgG4-related disease Ix: MRI orbit, IgG4 level, TFT/thyroid antibodies, orbital biopsy	Primary Dx: Orbital pseudotumor DDx: IgG4-related disease, thyroid eye Ix: IgG4 level, TFT/anti-thyroid antibody, orbital biopsy	Y	Y	14 [(5x2) + 4]	17 [(5x2) + 4 + 3]	Y
3.	Case 17-2019: A 44-Year-Old Man with Joint Pain, Weight Loss, and Chest Pain ⁶⁶	Primary Dx: SLE Ix: ANAs, anti-dsDNA antibodies, and complement levels, urine protein level and examination of urinary sediment, a direct Coombs' test, anti-phospholipid antibodies,	Primary Dx: SLE with cardiac involvement DDx: RA, infectious pericarditis, malignancy, TB Ix: SLE serology, RA serology, echocardiography, tissue biopsy if diagnosis remain uncertain	Primary Dx: RA DDx: SLE, infective endocarditis, tuberculosis, Lyme disease, vasculitis	Primary Dx: IE DDx: TB, RA, SLE, HIV Ix: Blood culture/CBC/ESR/CRP, CXR/echocardiography, autoimmune serology for RA/SLE, HIV testing, IGRA/Tuberculin skin test	Primary Dx: Pericarditis with pericardial effusion DDx: TB, SLE, RA, infective endocarditis Ix: Echocardiography, CBC/ESR/CRP/LFT/RFT/electrolyte, autoimmune markers for SLE/RA, infection disease testing	Primary Dx: Pericarditis with cardiac tamponade, most likely infectious pericarditis (bacterial including MTB, viral, fungal, parasitic) DDx: Connective tissue disease (SLE/RA/mixed connective tissue disease), malignancy-	N	Y	19 [(5x2) + 4 + 3 + 2]	16 [5 + (4x2) + 3]	Y

		examination of the pericardial fluid for acid-fast bacilli and a lymph node biopsy should be performed.				(HIV/Quantiferon-TB Gold test/blood culture), CT-thorax, pericardiocentesis	related pericarditis					
							Ix: Pericardial fluid culture/PCR, blood culture, further autoimmune testing, CT-guided biopsy of LN, close monitoring and follow up					
4.	Case 38-2019: A 20-Year-Old Man with Dyspnea and Abnormalities on Chest Imaging ⁶⁷	Primary Dx: Vasculitis with alveolar hemorrhage, possibly isolated pauci-immune pulmonary capillaritis Ix: Video-assisted thoracoscopic biopsy	Primary Dx: Hypersensitivity pneumonia due to e-cigarette use DDx: Connective tissue disease-associated ILD, drug-induced lung injury, respiratory infection Ix: Lung function test, bronchoscopy with BAL, lung biopsy, environmental exposure assessment, consult pulmonologist	Primary Dx: Did not commit DDx: E-cigarette/vaping produce associated lung injury, asthma, pneumonia, COPD, PE, heart failure	Primary Dx: E-cigarette/vaping produce associated lung injury DDx: Chronic eosinophilic pneumonia, hypersensitivity pneumonia, atypical/resistant pneumonia, fungal pneumonia, connective tissue disease-related lung disease Ix: Lung function test, bronchoscopy	Primary Dx: E-cigarette/vaping produce associated lung injury DDx: Chronic eosinophilic pneumonia, hypersensitivity pneumonia, atypical/resistant pneumonia, fungal pneumonia, connective tissue disease-related lung disease Ix: Lung function test, bronchoscopy with BAL, lung biopsy, serology for connective tissue disease, repeat CT-	Primary Dx: E-cigarette/vaping produce associated lung injury DDx: Hypersensitivity pneumonitis, organizing pneumonia, infectious pneumonia (bacterial/viral/fungal), sarcoidosis, connective tissue disease-related interstitial lung disease, lymphoid interstitial pneumonia Ix: Bronchoscopy	N	N	7 [5 + 2]	10 [4 + 3 + 2 + 1]	Y

					with BAL, lung biopsy, serology for connective tissue disease, repeat CT-thorax	thorax	with BAL, lung function, lung biopsy if diagnosis remained uncertain					
5.	Case 14-2020: A 37-Year-Old Man with Joint Pain and Eye Redness ⁶⁸	Primary Dx: GPA associated with ANCA directed against proteinase 3	Primary Dx: Eosinophilic granulomatosis with polyangiitis	Primary Dx: Did not commit	Primary Dx: Did not commit	Primary Dx: Adult-onset Still's disease/SLE/vasculitis	Primary Dx: Vasculitis (microscopic polyangiitis/GPA)	Y	Y	7	14	Y
		Ix: ANCA and skin biopsy	DDx: SLE, RA, polyarteritis nodosa	DDx: RA, psoriatic arthritis, SLE, Lyme disease, viral exanthema (such as parvovirus B19), reactive arthritis	DDx: RA, psoriatic arthritis, vasculitis, Lyme disease	DDx: RA, psoriatic arthritis, Lyme disease, sarcoidosis, mixed connective tissue disease, inflammatory myopathy, reactive arthritis, infection-related arthritis (viral/bacterial)	DDx: SLE, inflammatory myopathy, adult-onset Still's disease, mixed connective tissue disease, RA, sarcoidosis, reactive arthritis/infection-related arthritis			[4 + 3]	[(5x2) + 4]	
			Ix: Biopsy of affected organ, ANCA testing, RFT, CT/MRI scan, echocardiography		Ix: Serology (RF/anti-CCP/anti-dsDNA)/CRP/ESR, skin biopsy, joint aspiration, repeat Lyme disease serology	Ix: Metabolic panel, urinalysis, serology for SLE/connective tissue disease/vasculitis, HLA-B27, joint imaging, skin biopsy, muscle enzyme, joint aspiration	Ix: ANCA/C3 and C4/ cryoglobulins, skin biopsy, muscle biopsy, CXR/CT-thorax, joint aspiration					
6.	Case 33-2020: A 55-Year-Old Man with Abdominal Pain, Joint	Primary Dx: Pancreatitis, panniculitis, and polyarthrititis	Primary Dx: Necrotizing pancreatitis with infected pancreatic necrosis and	Primary Dx: Shingles	Primary Dx: Sarcoidosis	Primary Dx: Sarcoidosis	Primary Dx: Sarcoidosis	N	N	0	9	Y
				DDx:	DDx:	DDx: Infection,	DDx: Infection,				[4 + 3 + 2]	

Swelling, and Skin Lesions ⁶⁹		syndrome	associated complication	Pancreatitis, IBD, vasculitis, infection (endocarditis/disseminated fungal infection), malignancy	Gout/pseudogout, infectious arthritis, vasculitis (GPA/Henoch-Schonlein purpura), autoimmune disease (RA/SLE)	vasculitis (GPA/Henoch-Schonlein purpura), autoimmune disease (RA/SLE), gout/pseudogout	vasculitis (GPA/Henoch-Schonlein purpura), autoimmune disease (RA/SLE), gout/pseudogout						
		Ix: Skin biopsy	DDx: DVT, superficial thrombophlebitis										
			Ix: Blood culture, Doppler USG, pancreas imaging, pancreatic enzyme/function, consult rheumatologist		Ix: Joint aspiration, skin biopsy, blood culture, XR/MRI joints, ACE level	Ix: Blood/wound culture, skin biopsy, XR/MRI joints, ACE level	Ix: Blood/wound culture, skin biopsy, XR/MRI joints, ACE level						
7.	Case 34-2020: A 74-Year-Old Man with Chronic Kidney Disease ⁷⁰	Primary Dx: IgG4 related disease	Primary Dx: Sjogren's syndrome	Primary Dx: Diabetic nephropathy and hypertensive nephropathy	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Membranous nephropathy with acute tubulointerstitial nephritis and arterionephrosclerosis, also possible Sjogren's syndrome	Primary Dx: Membranous nephropathy with acute tubulointerstitial nephritis and arterionephrosclerosis	N	N	5	13	Y	
		Ix: A kidney biopsy, or reexamination of the previously obtained specimens of the kidney and lacrimal gland	DDx: Atherosclerosis, tricuspid aortic stenosis, CKD, hypertension, kyphoscoliosis	DDx: Glomerulonephritis, polycystic kidney, interstitial nephritis, renal artery stenosis, obstructive uropathy		DDx: Vasculitis such as polyarteritis nodosa, amyloidosis, autoimmune disease (SLE/RA), sarcoidosis	DDx: Sjogren's syndrome, vasculitis such as polyarteritis nodosa, amyloidosis, autoimmune disease (SLE/RA), sarcoidosis			[5]	[5 + 4 + 3 + 1]		
			Ix: Autoimmune workup, salivary gland biopsy, renal imaging, echocardiography/cardiac MRI, consult rheumatologist			Ix: Serology for							

						autoimmune disease, cryoglobulins, RFT, MRI neck and salivary gland, biopsy of affected gland/kidney, echocardiogram and CT heart	Ix: Serology for autoimmune disease, cryoglobulins, RFT, MRI neck and salivary gland, biopsy of affected gland/kidney, echocardiogram and CT heart					
8.	Case 30-2021: A 47-Year-Old Man with Recurrent Unilateral Head and Neck Pain ⁷¹	Primary Dx: Vascular Ehlers-Danlos syndrome Ix: Check mutations in <i>COL3A1</i>	Primary Dx: Fibromuscular dysplasia DDx: Polyarteritis nodosa, Ehlers-Danlos syndrome Ix: Genetic testing, vascular imaging, consult rheumatologist, hypercoagulability workup	Primary Dx: Did not commit DDx: Tension headache, migraine, cluster headache, temporomandibular joint dysfunction, cervical radiculopathy, occipital neuralgia, sinusitis, trigeminal neuralgia, dental/periodontal issues	Primary Dx: Wallenberg syndrome DDx: MS, post-herpetic neuralgia, CNS vasculitis, cervical radiculopathy, temporomandibular joint dysfunction Ix: MRI brain with angiography, consult neurologist/microbiologist, MS workup (MRI spine, visual evoked potentials/CSF)	Primary Dx: Wallenberg syndrome DDx: Vertebral artery dissection, cervical radiculopathy, temporomandibular joint dysfunction, tension headache/migraine, musculoskeletal strain/injury Ix: MRI brain with angiography, consult neurologist, spinal imaging, blood pressure management	Primary Dx: Fibromuscular dysplasia DDx: Ehlers-Danlos syndrome, Marfan's syndrome, Loeys-Dietz syndrome, vasculitis Ix: Genetic testing for connective tissue disorders, angiography of other vascular territory, consult rheumatologist/genetic counselor	N	Y	15 [5 + 4 + (3x2)]	19 [5 + (4x2) + 3 + 2 + 1]	Y

					analysis) if suspected, imaging studies for cervical spine and temporomandibular joint							
9.	Case 37-2021: A 60-Year-Old Man with Fevers, Fatigue, Arthralgias, a Mouth Ulcer, and a Rash ⁷²	Primary Dx: Anti-MDA5 dermatomyositis Ix: Muscle biopsy and test for antibodies directed against myositis-associated autoantigens, including MDA-5	Primary Dx: SLE DDx: Vasculitis (e.g. GPA, microscopic polyangiitis), infection (viral/bacterial/atypical), RA Ix: SLE serology, RFT, consult rheumatologist	Primary Dx: SLE DDx: RA, vasculitis (GPA/microscopic polyangiitis), infective endocarditis, Sjogren's syndrome, Behçet's disease	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Did not commit DDx: Coccidioidomycosis, SLE, vasculitis, Behçet's disease, infection Ix: Serology for coccidioides antibody/SLE autoantibody/vasculitis autoantibody, blood/throat swab culture	Primary Dx: Adult onset Still's disease DDx: SLE, inflammatory myositis, infectious etiology, vasculitis, sarcoidosis Ix: Serum IL-18/IL-6 level, serology for SLE/myositis/infections/vasculitis, muscle biopsy, EMG, BAL/lung biopsy, ACE level, ophthalmological evaluation, consult rheumatologist/microbiologist/pulmonologist	N	Y	9 [5 + 4]	13 [4 + (3x2) + 2 + 1]	Y
10.	Case 2-2022: A 70-Year-Old	Primary Dx: VEXAS	Primary Dx: Relapsing	Primary Dx: Did not commit	Primary Dx: Autoimmune	Primary Dx: Autoimmune	Primary Dx: Relapsing	N	N	9	11 [5 + 4 +	N

		antibodies panel	echocardiography, serology for endocarditis pathogens, CBC, autoimmune/hypercoagulability workup, CXR/CT-thorax, consult microbiologist/cardiologist	endocarditis, rheumatic heart disease	endocarditis (associated with malignancy/autoimmune condition/hypercoagulable states), rheumatic heart disease	malignancy/autoimmune condition/hypercoagulable states), antiphospholipid syndrome, rheumatic heart disease	disease					
					Ix: Blood culture, echocardiography, CBC/CRP/ESR, CT/MRI brain, coagulation study, autoimmune workup	Ix: Blood culture, echocardiography, CBC/CRP/ESR, CT/MRI brain, coagulation study and antiphospholipid testing, autoimmune workup	Ix: Blood culture, echocardiography, CBC/CRP/ESR/cogulation studies with antiphospholipid antibody testing, autoimmune workup, pelvic USG					
12.	Case 28-2022: A 59-Year-Old Man with Headache and Progressive Neurologic Dysfunction ⁷⁵	Primary Dx: GPA Ix: Temporal artery biopsy	Primary Dx: IgG4-related disease DDx: GCA, GPA, lymphoma Ix: MRI/CT brain/spine, LP, biopsy of involved organ, autoantibody testing	Primary Dx: Did not commit DDx: GCA, stroke, brain tumor, meningitis, MS, neurodegenerative diseases (Parkinson's disease/Alzheimer's disease), primary/secondary headache	Primary Dx: GCA DDx: Cerebral vasculitis, meningitis/encephalitis, secondary headache (sinusitis/inflammation), stroke Ix: MRI brain, CSF analysis, angiography, temporal artery	Primary Dx: IgG4-related disease DDx: GCA, GPA, CNS lymphoma, neurosarcoidosis Ix: IgG4 level, CT/MRI/USG of thorax/abdomen/pelvis, biopsy of affected organ, CSF analysis	Primary Dx: IgG4-related disease DDx: GCA, GPA, neurosarcoidosis, CNS lymphoma, infection (TB/fungal/bacterial) Ix: IgG4 level, CT/MRI/USG of thorax/abdomen/pelvis, biopsy of affected organ,	N	Y	15 [5 + 4 + (3x2)]	15 [5 + 4 + (3x2)]	Y

				biopsy	CSF analysis							
13.	Case 9-2023: A 20-Year-Old Man with Shortness of Breath and Proteinuria ⁷⁶	Primary Dx: SLE	Primary Dx: PE	Primary Dx: Did not commit. PE, pneumonia, TB are more common and concerning etiologies that need to be rule out	Primary Dx: Pneumonia	Primary Dx: PE	Primary Dx: PE	N	Y	0	5 [3 + 2]	Y
		Ix: Renal biopsy with immunofluorescence staining	DDx: Pulmonary infarction, pneumonia, pulmonary contusion		DDx: TB, PE, lung abscess, fungal pneumonia, drug-induced lung injury	DDx: pneumonia, lung infarction, vasculitis, endocarditis, drug-induced lung injury	DDx: Pneumonia, lung infarction, vasculitis (primary vasculitis such as GPA, infection-related such as viral/TB, autoimmune such as SLE, paraneoplastic, drug-induced, cryoglobulinemia), endocarditis, drug-induced lung injury					
			Ix: D-dimer, V/Q scan, Doppler for lower extremity, echocardiography	DDx: Bronchiectasis, lung cancer, anticoagulant use, Goodpasture’s syndrome	Ix: CXR/CT-thorax, sputum/blood culture, TB testing, fungal testing, D-dimer, CTPA	Ix: blood culture, echocardiography, autoimmune serology, Doppler of lower extremities, V/Q scan	Ix: Blood culture, echocardiography, autoimmune serology, Doppler of lower extremities, V/Q scan					
Drug reaction												
1.	Case 26-2018: A 48-Year-Old Man with Fever, Chills, Myalgias, and Rash ⁷⁷	Primary Dx: DRESS (suspected analgesic medications; reactivation of HHV6	Primary Dx: DRESS	Primary Dx: Did not commit	Primary Dx: DRESS	Primary Dx: DRESS	Primary Dx: DRESS	Y	Y	17 [(5x2) + 4 + 3]	17 [(5x2) + 4 + 3]	Y
			DDx: Viral infection, autoimmune disorder, hematologic	DDx: Viral infection, bacterial	DDx: Viral/bacterial/parasitic	DDx: Viral/bacterial/parasitic infections,	DDx: Autoimmune/inflammatory					

				crine disorder	metabolic/endocrine dysfunction		disturbance					
					Ix: CBC/metabolic panel/LFT, thiamine level, blood alcohol level, blood culture, EEG, CXR, MRI/CT brain	Ix: CBC/metabolic panel/LFT, thiamine level, blood alcohol level, blood culture, EEG, CXR, MRI/CT brain	Ix: CBC/metabolic panel/coagulation profile, OGD, vitamin B1 level, blood/urine culture, continuous EEG					
3.	Case 4-2020: A 52-Year-Old Woman with Seizure Disorder and Wide-Complex Tachycardia ⁷⁹	Primary Dx: Anti-epileptic toxicity Ix: Not applicable as patient passed away	Primary Dx: Takotsubo cardiomyopathy DDx: Arrhythmia-induced cardiomyopathy, acute myocardial infarction, other causes of ventricular dysfunction (virus/toxic-metabolic/infiltrative) Ix: cardiac enzyme, coronary angiography, echocardiography, cardiac MRI, ECG monitoring, metabolic panel	Primary Dx: Ventricular tachycardia DDx: Supraventricular tachycardia, pre-excited tachycardia, tachycardia with paced rhythm, electrolyte disturbance	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Ventricular tachycardia DDx: supraventricular tachycardia, drug-induced wide complex tachycardia, electrolyte disturbance Ix: ECG, CBC/LFT/RFT/drug level/electrolyte, echocardiography, cardiac MRI, electrophysiology study	Primary Dx: Drug-induced myocardial dysfunction and ECG changes (propofol/phenytoin/fluoxetine/nortriptyline/electrolyte disturbance secondary to oxcarbazepine/lacosamide) DDx: Electrolyte disturbance, Takotsubo cardiomyopathy, myocarditis, ischemic heart Ix: ECG, CBC/LFT/RFT/cardiac enzyme/electrolyte	Y	Y	0	10 [(5x2)]	Y

e/coagulation
profile,
echocardiography,
cardiac MRI,
coronary
angiography

4.	Case 9-2020: A 64-Year-Old Man with Shortness of Breath, Cough, and Hypoxemia ⁸⁰	Primary Dx: Pneumonitis induced by immune checkpoint inhibitor therapy (autopsy: also with Aspergillus infection) Ix: Not for further immune check-point inhibitor therapy and high dose steroids were used	Primary Dx: Metastatic melanoma DDx: Drug-induced lung toxicity, pulmonary infection Ix: Bronchoscopy with BAL, lung function test, consult pulmonologist	Primary Dx: Pneumonia DDx: PE, malignant pleural effusion, lung metastasis, influenza	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: Immune-related pneumonitis DDx: Pneumonia, PE, malignant pleural effusion Ix: CXR/CT-thorax, CBC/ESR/CRP, sputum culture, ABG, D-dimer, CTPA	Primary dx: Immune-related pneumonitis DDx: Pneumonia, ILD, pulmonary edema Ix: Bronchoscopy with BAL, lung biopsy, procalcitonin	Y	Y	13 [5 + (4x2)]	12 [(5x2) + 2]	Y
5.	Case 32-2022: A 76-Year-Old Man with Postoperative Cardiogenic Shock and	Primary Dx: DRESS complicated by hypersensitivity myocarditis (due to	Primary Dx: DRESS syndrome DDx: Acute interstitial nephritis,	Primary Dx: did not commit DDx: Post-operative	N/A, patient first presented to the author's hospital for his/her chief complaint.	Primary Dx: did not commit DDx: Prosthetic valve	Primary dx: DRESS syndrome DDx: Allergic reaction, sepsis,	Y	Y	13 [(5x2) + 3]	10 [(5x2)]	Y

Diffuse Rash ⁸¹	oxacillin)	hypersensitivity myocarditis, infective endocarditis	infection, drug reaction, vasoplegic syndrome, acute heart failure, post- pericardiotomy syndrome	dysfunction/function n, ventricular arrhythmia due to post-operative complication/electro lyte imbalance, vasoplegia syndrome, drug- induced rash, acute kidney injury secondary to cardiogenic shock/nephrotoxic medication	viral exanthema, vasculitis, autoimmune/conn ective tissue disorder
	Ix: HHV-6 DNA levels	Ix: Skin biopsy, echocardiography, renal biopsy, cardiac MRI, drug hypersensitivity test		Ix: blood culture, echocardiography, CBC/electrolyte/LF T/RFT/coagulation profile, skin biopsy, consult dermatology	Ix: Skin biopsy, ESR/CRP, serology for autoimmune/conn ective tissue disorders, viral serology (e.g. EBV/CMV), blood/urine culture, drug review

N= No; Y = Yes

ABG=arterial blood gas; ABPA= allergic bronchopulmonary aspergillosis; ACE = angiotensin-converting enzyme; AFB = acid-fast bacilli; AIDS= acquired immunodeficiency syndrome; ANA= antinuclear antibodies; ANCA=anti-neutrophil cytoplasmic antibodies; ARDS= acute respiratory distress syndrome; BAL= bronchoalveolar lavage; BNP=brain natriuretic peptide; CA=cancer; CANVAS = Cerebellar ataxia, neuropathy, and vestibular areflexia syndrome; CASPR2=Contactin-associated protein-like 2; CBC=complete blood count; CC=chief complaint; CIDP=chronic inflammatory demyelinating polyneuropathy; CJD=Creutzfeldt-Jakob disease; CLN=colonoscopy; CK=creatinine kinase; CMV=cytomegalovirus; CNS =central nervous system;

COL5A1, 5A2, 3A1 = Collagen Type V Alpha 1 Chain, alpha2 chain and Type III alpha 1 chain; COPD = chronic obstructive pulmonary disease; COVID= Coronavirus disease 2019; CRP = C-reactive protein; CSF = cerebrospinal fluid; CT = computer tomography; CTPA = computer tomography of pulmonary angiography; CXR = chest X-ray; DIC = disseminated intravascular coagulopathy; dsDNA=double stranded DNA; Dx= diagnosis; DDx= differential diagnosis; DM – diabetes mellitus; DRESS = drug reaction with eosinophilia and systemic symptoms; DVT =deep vein thrombosis; EBV= Epstein-Barr virus; ECG – electrocardiography; EEG =electroencephalography; EMG = electromyogram; ENA=extractable nuclear antigen; ESR= erythrocyte sedimentation rate; DNA – deoxyribonucleic acid; ECT=electroconvulsive therapy; EEG =electroencephalogram; EMG =electromyogram; ESR = erythrocyte sedimentation rate; GABA =Gamma-aminobutyric acid; GBS = Guillain-Barré Syndrome; GCA = giant cell arteritis; GERD = gastroesophageal reflux disease; GI =Gastrointestinal tract; GN = glomerulonephritis; GPA = granulomatous with polyangiitis; GVHD = graft-versus-host disease; HAV= Hepatitis A virus; HBc = anti-hepatitis B core antibody; HBeAg = Hepatitis B virus e antigen; HBsAg=Hepatitis B virus surface antigen; HBV = Hepatitis B virus; HCV = Hepatitis C virus; HHV-6 = human herpes virus 6; HIV = Human Immunodeficiency Virus; HMBS = hydroxymethylbilane synthase; HRCT = high resolution computer tomography; HSV = Human simplex virus; HUS = hemolytic uremic syndrome; Hx = history; MDA5 = melanoma differentiation-associated gene-5; IBD = inflammatory bowel disease; IBS = irritable bowel syndrome; IGRA = interferon- γ release assay; IE = infective endocarditis; ITP = immune thrombocytopenia; Ix = investigation; LFT = liver function test; LN = lymph node; LP = lumbar puncture; MAC – Mycobacterium avium complex; MDA – myelodysplastic syndrome; MCI = mild cognitive impairment; MI = myocardial infarction; MND = motor neuron disease; MR = magnetic resonance; MRI =magnetic resonance imaging; MS = multiple sclerosis; MSA =

multiple system atrophy; N/A = not applicable; NCV = nerve conduction study; NH₃ = ammonia; NPH = normal pressure hydrocephalus; NPS = nasopharyngeal swab; OGD = esophagoduodenoscopy; OSA = obstructive sleep apnea; PCR = polymerase chain reaction; PE = pulmonary embolism; PET = positron emission computed tomography; PJP = *Pneumocystis jirovecii*; PRNP = prion protein; PSG = polysomnography; PTSD = post-traumatic stress disorder; RA = rheumatoid arthritis; REM = rapid eye movement; RF = rheumatoid factor; RFC = replication factor C subunit 1; RFT = renal function test; RNA = ribonucleic acid; RT-PCR = reverse transcription polymerase chain reaction; RT-QuIC = real-time quaking-induced conversion; Rx = treatment; SCA = spinocerebellar ataxia; SLE = systemic lupus erythematosus; SMAD3 = Mothers against decapentaplegic homolog 3; STD = sexually-transmitted disease; TB = tuberculosis; TGFB2 & 3 = transforming growth factor beta-2 & 3; TGFBR1 & 2 = Transforming Growth Factor Beta Receptor 1 & 2; TFT = thyroid function test; TIA = transient ischemic attack; TTP = thrombotic thrombocytopenia; USG = ultrasound; UTI = urinary tract infection; VFSS = video fluoroscopic swallowing study; VZV = Varicella-zoster virus

1.3. Supplementary Table 2 Contingency Tables Analyses

	Primary Dx correct	Primary Dx incorrect
Cognitive impairment (n=13)	4 (30.77%)	9 (69.23%)
Non-cognitive impairment (n=68)	27 (39.71%)	41 (60.29%)

$p = 0.7570$ by Fisher's Exact Test

	DDx included	DDx not included
Cognitive impairment (n=13)	6 (46.15%)	7 (53.85%)
Non-cognitive impairment (n=68)	52 (76.47%)	16 (23.53%)

$p = 0.0263$ by Chi-Square Test

	Ix able to reach Dx	Ix unable to reach Dx
Cognitive impairment (n=13)	10 (76.92%)	3 (23.08%)
Non-cognitive impairment (n=68)	58 (85.29%)	10 (14.71%)

$p = 0.4293$ by Fisher's Exact Test

	Primary Dx correct	Primary Dx incorrect
Infectious disease (n=50)	21 (42%)	29 (58%)
Non-infectious disease (n=31)	10 (32.26%)	21 (67.74%)

$p = 0.0787$ by Chi-Square Test

	DDx included	DDx not included
Infectious disease (n=50)	40 (80%)	10 (20%)
Non-infectious disease (n=31)	18 (58.06%)	13 (41.94%)

$p = 0.0333$ by Chi-Square Test

	Ix able to reach Dx	Ix unable to reach Dx
Infectious disease (n=50)	42 (84%)	8 (16%)
Non-infectious disease (n=31)	26 (83.87%)	5 (16.13%)

$p > 0.999$ by Fisher's Exact Test

	Primary Dx correct	Primary Dx incorrect
Rheumatology (n=13)	2 (15.38%)	11 (84.62%)
Non-rheumatology (n=68)	29 (42.65%)	39 (57.35%)

$p = 0.1167$ by Fisher's Exact Test

	DDx included	DDx not included
Rheumatology (n=13)	8 (61.54%)	5 (38.46%)
Non-rheumatology (n=68)	50 (73.53%)	18 (26.47%)

$p = 0.5026$ by Fisher's Exact Test

	Ix able to reach Dx	Ix unable to reach Dx
Rheumatology (n=13)	12 (92.31%)	1 (7.69%)
Non-rheumatology (n=68)	56 (82.35%)	12 (17.65%)

$p = 0.6819$ by Fisher's Exact Test

	Primary Dx correct	Primary Dx incorrect
Drug reactions (n=5)	4 (80%)	1 (20%)
Non-drug reactions (n=76)	27 (35.53%)	49 (64.47%)

$p = 0.068$ by Fisher's Exact Test

	DDx included	DDx not included
Drug reactions (n=5)	4 (80%)	1 (20%)
Non-drug reactions (n=76)	54 (71.05%)	22 (28.95%)

$p > 0.999$ by Fisher's Exact Test

	Ix able to reach Dx	Ix unable to reach Dx
Drug reactions (n=5)	4 (80%)	1 (20%)
Non-drug reactions (n=76)	64 (84.21%)	12 (15.79%)

$p > 0.999$ by Fisher's Exact Test

Dx= diagnosis; DDx= differential diagnoses; Ix= investigation

References:

1. Taylor JB, Prager LM, Quijije NV, Schaefer PW. Case 21-2018: a 61-year-old man with grandiosity, impulsivity, and decreased sleep. *N Engl J Med* 2018;**379**:182-9.
2. Roohi J, Roohi F. Case 5-2019: a woman with delusional thinking and paresthesia of the right hand. *N Engl J Med* 2019;**380**:2081-2.
3. Chwalisz BK, Buchbinder BR, Schmahmann JD, Samore WR. Case 32-2019: a 70-year-old woman with rapidly progressive ataxia. *N Engl J Med* 2019;**381**:1569-78.
4. Caplan DN, Rapalino O, Karaa A, Rosovsky RP, Uljon S. Case 35-2020: a 59-year-old woman with type 1 diabetes mellitus and obtundation. *N Engl J Med* 2020;**383**:1974-83.
5. Marouf F, Glover M, Wininger B, Curry WT. Case 10-2021: a 70-year-old man with depressed mood, unsteady gait, and urinary incontinence. *N Engl J Med* 2021;**384**:1350-8.
6. Kontos N, Parsons MW, Biffi A, Gonzalez RG. Case 19-2021: a 54-year-old man with irritability, confusion, and odd Behaviors. *N Engl J Med* 2021;**384**:2438-45.
7. Khurana V, de Gusmao CM, Glover M, Helgager J. Case 20-2021: a 69-year-old man with ataxia. *N Engl J Med* 2021;**385**:165-75.
8. Willett LL, Bromberg GK, Chung R, Leaf RK, Goldman RH, Dickey AK. Case 38-2021: a 76-year-old woman with abdominal pain, weight loss, and memory impairment. *N Engl J Med* 2021;**385**:2378-88.
9. Videnovic A, Babu S, Zhao B, Reda HM, Linnoila JJ. Case 1-2022: a 67-year-old man with motor neuron disease and odd behaviors during sleep. *N Engl J Med* 2022;**386**:173-80.
10. Stephen CD, Schaefer PW, Appleby BS, Oakley DH. Case 5-2022: a 65-year-old woman with rapidly progressive weakness in the right arm and recurrent falls. *N Engl J Med* 2022;**386**:674-87.

11. Forst DA, Restrepo JA, Gonzalez RG, Jones PS, Marshall MS. Case 7-2022: a 65-year-old woman with depression, recurrent falls, and inability to care for herself. *N Engl J Med* 2022;**386**:977-86.
12. Venna N, Schaefer PW, Miloslavsky EM. Case 27-2022: a 32-year-old man with confusion, headache, and fever. *N Engl J Med* 2022;**387**:925-33.
13. Fricchione GL, Paul AB, Chemali Z, Kritzer MD. Case 34-2022: a 57-year-old woman with Covid-19 and delusions. *N Engl J Med* 2022;**387**:1795-803.
14. Paras ML, Hyle EP, Foreman RK, Coffey KC. Case 14-2018: a 68-year-old woman with a rash, hyponatremia, and uveitis. *N Engl J Med* 2018;**378**:1825-33.
15. Kobayashi KJ, Weil AA, Branda JA. Case 16-2018: a 45-year-old man with fever, thrombocytopenia, and elevated aminotransferase levels. *N Engl J Med* 2018;**378**:2023-9.
16. Rubin AK, Burk KS, Staller K, Kunitake H, Robbins GK, Deshpande V. Case 30-2018: a 66-year-old woman with chronic abdominal pain. *N Engl J Med* 2018;**379**:1263-72.
17. Reda HM, Harvey HB, Venna N, Branda JA. Case 34-2018: a 58-year-old woman with paresthesia and weakness of the left foot and abdominal wall. *N Engl J Med* 2018;**379**:1862-8.
18. Chen ST, Cahalane AM, Ryan ET, Foreman RK. Case 2-2019: a 36-year-old man with rash, abdominal pain, and lymphadenopathy. *N Engl J Med* 2019;**380**:275-83.
19. Zachary KC, LaRocque RC, Gonzalez RG, Branda JA. Case 3-2019: a 70-year-old woman with fever, headache, and progressive encephalopathy. *N Engl J Med* 2019;**380**:380-7.
20. Rosenbaum JT, Rifkin LM, Buch KA, Barshak MB, Hoang MP. Case 8-2019: a 58-year-old woman with vision loss, headaches, and oral ulcers. *N Engl J Med* 2019;**380**:1062-71.
21. Schaefer EA, Anderson MA, Kim AY, Sfeir MM. Case 15-2019: a 55-year-old man with jaundice. *N Engl J Med* 2019;**380**:1955-63.

22. Simmons RP, Dudzinski DM, Shepard JO, Hurtado RM, Coffey KC. Case 16-2019: a 53-year-old man with cough and eosinophilia. *N Engl J Med* 2019;**380**:2052-9.
23. Khalili H, O'Shea A, Robbins GK, Zukerberg LR. Case 19-2019: a 38-year-old woman with abdominal pain and fever. *N Engl J Med* 2019;**380**:2461-70.
24. Ison MG, Lebeis TA, Barros N, Lewis GD, Massoth LR. Case 20-2019: a 52-year-old woman with fever and rash after heart transplantation. *N Engl J Med* 2019;**380**:2564-73.
25. Tunkel AR, Baron EL, Buch KA, Marty FM, Martinez-Lage M. Case 31-2019: a 45-year-old woman with headache and somnolence. *N Engl J Med* 2019;**381**:1459-70.
26. Saag M, Mendoza DP, Sherman MS, Cote GM, Shih AR. Case 36-2019: a 34-year-old man with dyspnea, odynophagia, and abdominal pain. *N Engl J Med* 2019;**381**:2052-61.
27. Stone GS, Glover M, Jilg N, Sfeir MM. Case 40-2019: a 26-year-old returning traveler with headache. *N Engl J Med* 2019;**381**:2553-60.
28. Azar MM, Muse VV, Villalba JA, Turbett SE. Case 2-2020: a 64-year-old man with fever and respiratory failure. *N Engl J Med* 2020;**382**:276-85.
29. Lowe RC, Chu JN, Pierce TT, Weil AA, Branda JA. Case 3-2020: a 44-year-old man with weight loss, diarrhea, and abdominal pain. *N Engl J Med* 2020;**382**:365-74.
30. Sykes DB, Zhang EW, Karp Leaf RS, Nardi V, Turbett SE. Case 10-2020: an 83-year-old man with pancytopenia and acute renal failure. *N Engl J Med* 2020;**382**:1258-66.
31. Berns JS, Rapalino O, Fenves AZ, El Khoury JB, Klepeis VE, Anahtar MN. Case 11-2020: a 37-year-old man with facial droop, dysarthria, and kidney failure. *N Engl J Med* 2020;**382**:1457-66.
32. Barros N, McDermott S, Wong AK, Turbett SE. Case 12-2020: a 24-year-old man with fever, cough, and dyspnea. *N Engl J Med* 2020;**382**:1544-53.

33. Armstrong KA, Cohen JV, Shepard JO, Folch EE, Mansour MK, Stefely JA. Case 16-2020: a 47-year-old woman with recurrent melanoma and pulmonary nodules. *N Engl J Med* 2020;**382**:2034-43.
34. Kazi DS, Martin LM, Litmanovich D, Pinto DS, Clerkin KJ, Zimetbaum PJ, et al. Case 18-2020: a 73-year-old man with hypoxemic respiratory failure and cardiac dysfunction. *N Engl J Med* 2020;**382**:2354-64.
35. Sharma A, Eisen JE, Shepard JO, Bernheim A, Little BP. Case 25-2020: a 47-year-old woman with a lung mass. *N Engl J Med* 2020;**383**:665-74.
36. Gottlieb GS, Rosenberg JM, Gonzalez RG, Gandhi RT. Case 27-2020: a 53-year-old woman with headache and gait imbalance. *N Engl J Med* 2020;**383**:859-66.
37. Mansour MK, Smibert OC, Kambadakone A, Sfeir MM. Case 31-2020: a 48-year-old man with lymphoma and abdominal pain. *N Engl J Med* 2020;**383**:1469-77.
38. Mukerji SS, Ard KL, Schaefer PW, Branda JA. Case 32-2020: a 63-year-old man with confusion, fatigue, and garbled speech. *N Engl J Med* 2020;**383**:1578-86.
39. Armand P, Heeger AP, Kanjilal S, Krystel-Whittemore M. Case 37-2020: a 35-year-old man with lymphadenopathy and petechiae. *N Engl J Med* 2020;**383**:2159-9.
40. Heller HM, Gonzalez RG, Edlow BL, Ard KL, Gogakos T. Case 40-2020: a 24-year-old man with headache and Covid-19. *N Engl J Med* 2020;**383**:2572-80.
41. Bebell LM, Gonzalez RG, Barczak AK, Anahtar MN. Case 1-2021: a 76-year-old woman with lethargy and altered mental status. *N Engl J Med* 2021;**384**:166-76.
42. Hellmann DB, Shepard JO, Schaefer PW, Johnson JH, Crotty RK. Case 5-2021: a 68-year-old man with delirium and renal insufficiency. *N Engl J Med* 2021;**384**:651-62.
43. Bendapudi PK, Whalen MJ, Lahoud-Rahme M, Villalba JA. Case 7-2021: a 19-year-old man with shock, multiple organ failure, and rash. *N Engl J Med*

Med 2021;**384**:953-63.

44. Charles RC, Sertic M, Neilan AM, Sohani AR. Case 11-2021: a 39-year-old woman with fever, flank pain, and inguinal lymphadenopathy. *N Engl J Med* 2021;**384**:1448-56.
45. Yoon MK, Kelly HR, Freitag SK, Marneros AG, Barshak MB, Brackett DG. Case 12-2021: a 78-year-old man with a rash on the scalp and face. *N Engl J Med* 2021;**384**:1553-62.
46. Gibbons MD, Mendoza DP, Waheed A, Barshak MB, Villalba JA. Case 14-2021: a 64-year-old woman with fever and pancytopenia. *N Engl J Med* 2021;**384**:1849-57.
47. Dua A, Sutphin PD, Siedner MJ, Moran J. Case 16-2021: a 37-year-old woman with abdominal pain and aortic dilatation. *N Engl J Med* 2021;**384**:2054-63.
48. Hibbert KA, Goiffon RJ, Fogerty AE. Case 18-2021: an 81-year-old man with cough, fever, and shortness of breath. *N Engl J Med* 2021;**384**:2332-40.
49. Ciaranello AL, Tran KM, Audin CR, Anahtar MN. Case 21-2021: a 33-year-old pregnant woman with fever, abdominal pain, and headache. *N Engl J Med* 2021;**385**:265-74.
50. Smibert OC, Catalano OA, Goodarzi K, Roberts MB. Case 23-2021: a 41-year-old woman with bloody stools and thrombocytopenia. *N Engl J Med* 2021;**385**:451-60.
51. Goldstein RH, Mehan WA, Hutchison B, Robbins GK. Case 24-2021: a 63-year-old woman with fever, sore throat, and confusion. *N Engl J Med* 2021;**385**:641-8.
52. Hock H, Kelly HR, Meyerowitz EA, Frigault MJ, Massoth LR. Case 31-2021: a 21-year-old man with sore throat, epistaxis, and oropharyngeal petechiae. *N Engl J Med* 2021;**385**:1511-20.
53. Cole AJ, Slutzman JE, Ryan ET, Lev MH, Eng G. Case 34-2021: a 38-year-old man with altered mental status and new onset of seizures. *N Engl J*

Med 2021;**385**:1894-902.

54. Chapman MM, Muse VV, Mojica JE, Anahtar MN. Case 35-2021: a 50-year-old woman with pain in the left upper quadrant and hypoxemia. *N Engl J Med* 2021;**385**:1995-2001.
55. Winston LG, Winkler ML, Kheterpal A, Villalba JA. Case 36-2021: a 22-year-old man with pain and erythema of the left hand. *N Engl J Med* 2021;**385**:2078-86.
56. Harris JP, Ciaranello AL, Tabb ES. Case 4-2022: A 55-year-old man with bilateral hearing loss and eye redness. *N Engl J Med* 2022;**386**:583-90.
57. Vyas JM, Castle AC, Bourgouin PP, Turbett SE. Case 9-2022: a 56-year-old woman with fever, myalgias, diarrhea, and cough. *N Engl J Med* 2022;**386**:1166-74.
58. Paras ML, Khurshid S, Foldyna B, Huang AL, Hohmann EL, Cooper LT, et al. Case 13-2022: a 56-year-old man with myalgias, fever, and bradycardia. *N Engl J Med* 2022;**386**:1647-57.
59. Restrepo D, Haramati A, McCluskey SM, Branda JA. Case 22-2022: a 34-year-old woman with cavitary lung lesions. *N Engl J Med* 2022;**387**:261-9.
60. Marra CM, Rohatgi S, Bloom AK, Kahle KT, Haj AK. Case 25-2022: a 25-year-old woman with headache and blurred vision. *N Engl J Med* 2022;**387**:641-50.
61. Roberts MB, Lee J, Murphy MC, Kim AY, Coglianese EE, Hilburn C. Case 37-2022: a 55-year-old man with fatigue, weight loss, and pulmonary nodules. *N Engl J Med* 2022;**387**:2172-83.
62. Sampat HN, Sharma A, Nussbaum EZ. Case 5-2023: a 67-year-old man with interstitial lung disease, fever, and myalgias. *N Engl J Med* 2023;**388**:642-50.
63. Mansour MK, King JD, Chen ST, Fishman JA, Nazarian RM. Case 7-2023: a 70-year-old man with Covid-19, respiratory failure, and rashes. *N Engl J Med* 2023;**388**:926-37.

64. Sacks CA, Kilcoyne A, Wallace ZS, Glomski K. Case 20-2018: a 64-year-old man with fever, arthralgias, and testicular pain. *N Engl J Med* 2018;**378**:2518-29.
65. Lefebvre DR, Reinshagen KL, Yoon MK, Stone JH, Stagner AM. Case 39-2018: an 18-year-old man with diplopia and proptosis of the left eye. *N Engl J Med* 2018;**379**:2452-61.
66. Arvikar SL, Schoenfeld SR, Fox AS, Tanguturi VK, Stuart LD. Case 17-2019: a 44-year-old man with joint pain, weight loss, and chest pain. *N Engl J Med* 2019;**380**:2157-67.
67. Hallowell RW, Feldman MB, Little BP, Karp Leaf RS, Hariri LP. Case 38-2019: a 20-year-old man with dyspnea and abnormalities on chest imaging. *N Engl J Med* 2019;**381**:2353-63.
68. Sobrin L, Stone JH, Huang AJ, Niles JL, Nazarian RM. Case 14-2020: a 37-year-old man with joint pain and eye redness. *N Engl J Med* 2020;**382**:1750-8.
69. Yasuda MR, Roller LA, Fagenholz PJ, Hoang MP. Case 33-2020: a 55-year-old man with abdominal pain, joint swelling, and skin lesions. *N Engl J Med* 2020;**383**:1664-71.
70. Cortazar FB, Rhee EP, Gupta S, Sakhuja R, Stone JH, Colvin RB. Case 34-2020: a 74-year-old man with chronic kidney disease. *N Engl J Med* 2020;**383**:1768-78.
71. Lindsay ME, Dudzinski DM, Yoon BC, Jaff MR, Thakuria JV. Case 30-2021: a 47-year-old man with recurrent unilateral head and neck pain. *N Engl J Med* 2021;**385**:1317-25.
72. Wallace ZS, Rodriguez K, Dau J, Bloch DB, Champion SN. Case 37-2021: a 60-year-old man with fevers, fatigue, arthralgias, a mouth ulcer, and a rash. *N Engl J Med* 2021;**385**:2282-93.
73. Grayson PC, Perugino CA, Dinculescu VV, Ferry JA. Case 2-2022: a 70-year-old man with a recurrent left pleural effusion. *N Engl J Med* 2022;**386**:274-83.

74. Matza MA, Rincon SP, Yucel E, Jorge AM, Singhal AB, Coleman CA, et al. Case 12-2022: a 41-year-old woman with transient ischemic attack and mitral valve masses. *N Engl J Med* 2022;**386**:1560-70.
75. Jayne D, Stone JH, Rapalino O, Stone JR. Case 28-2022: a 59-year-old man with headache and progressive neurologic dysfunction. *N Engl J Med* 2022;**387**:1022-32.
76. Fitzgerald SF, Victoria T, Tan W, Harris CK. Case 9-2023: a 20-year-old man with shortness of breath and proteinuria. *N Engl J Med* 2023;**388**:1127-35.
77. Turbett SE, Tsiaras WG, McDermott S, Eng G. Case 26-2018: a 48-year-old man with fever, chills, myalgias, and rash. *N Engl J Med* 2018;**379**:775-85.
78. Fenves AZ, Mojtahed A, Nisavic M, Massoth LR. Case 13-2019: a 54-year-old man with alcohol withdrawal and altered mental status. *N Engl J Med* 2019;**380**:1657-65.
79. Kramer DB, Mihatov N, Buch KA, Zafar SF, Ruskin JN. Case 4-2020: a 52-year-old woman with seizure disorder and wide-complex tachycardia. *N Engl J Med* 2020;**382**:457-67.
80. Reynolds KL, Sullivan RJ, Fintelmann FJ, Mansour MK, England J. Case 9-2020: a 64-year-old man with shortness of breath, cough, and hypoxemia. *N Engl J Med* 2020;**382**:1150-9.
81. Desai AS, Dudzinski DM, Stib MT, Chen ST, Newton-Cheh C, Blumenthal KG, et al. Case 32-2022: a 76-year-old man with postoperative cardiogenic shock and diffuse rash. *N Engl J Med* 2022;**387**:1502-13.