

Clinical Signs and Symptoms of Tick borne borreliosis

Borreliosis Stage & Time Frame	Signs and symptoms	Lyme Borreliosis Group		Relapsing Fever Borreliosis Group
		North America	Eurasia	Africa, Europe, North, Central, South America, Asia
Geographical Location		North America	Eurasia	Africa, Europe, North, Central, South America, Asia
Main Causative agent		<i>B. burgdorferi sensu stricto</i>	<i>B. garinii, B. afzelii</i>	<i>B. hermsii, B. duttonii, B. miyamotoi</i>
Stage 1 Early localised up to 1 month	Constitutional	Fever, chills, Fatigue, lethargy, lymphadenopathy	Fever, chills, Fatigue, lethargy, lymphadenopathy	Fever, relapsing with rigors and headache Fatigue lethargy
	Skin	Erythema migrans	Erythema migrans Lymphocytoma cutis	No obvious initial skin involvement
Stage 2 Early disseminated 1-4 months	Constitutional	Fever, chills, Fatigue, lethargy, lymphadenopathy	Fever, chills, Fatigue, lethargy, lymphadenopathy	Fever, relapsing with rigors and headache Fatigue lethargy
	Skin	Multiple Erythema migrans	Multiple erythema migrans that can be associated with lymphocytoma cutis	
	Musculo-skeletal	Myalgia Arthralgia Arthritis-severe asymmetric oligoarticular joint inflammation muscle weakness, twitches, tremors	Myalgia Arthralgia Arthritis-less intense inflammation	Myalgia Arthralgia Arthritis
	Cardiac	Atrioventricular block and myocarditis	Atrioventricular block and myocarditis	Carditis
	Eyes	Conjunctivitis photophobia	Conjunctivitis photophobia	Iritis Iridocyclitis photophobia
	Neurological	Headache, neck stiffness,	Fewer meningeal signs, prominent	Meningitis

		Meningismus with or without cranial neuropathy	radiculopathy, encephalomyelitis and cranial neuropathy, including facial palsy, optic neuritis, vestibular neuronitis and oculomotor palsy (mostly <i>B. garinii</i>) cognitive abnormalities	Cranial-nerve palsies Encephalitis Hemiplegia Seizures Coma
	Haemorrhage			Cerebral haemorrhage Petechiae Epistaxis Haemoptysis Haematuria haematemesis
Stage 3 Late disseminated >4 months	Skin	rare	Acrodermatitis Chronica Atrophicans (ACA- <i>B. afzelii</i>)	rash
	Musculo-skeletal	Treatment resistant arthritis, muscle weakness, abnormal muscle twitches, tremors	Rare	Myalgia Arthralgia Arthritis
	Cardiac	Dilated cardiomyopathy, endocarditis, heart failure, chest pain, conduction and rhythm disturbances, shortness of breath	Congestive cardiomyopathy, endocarditis, cardiomyopathy, angina, arrhythmias, dyspnea	Carditis, myocarditis Congestive cardiomyopathy, endocarditis, cardiomyopathy, angina, arrhythmias, dyspnea
	Ophthalmological	Conjunctivitis, keratoconjunctivitis sicca, foggy or flickering vision	Conjunctivitis, keratoconjunctivitis sicca, foggy or flickering vision	Iritis Iridocyclitis
	Neurological	Paresthesias, radiculopathy, encephalopathy, sleep disturbance, cognitive deficits such as impaired memory and impaired concentration, dizziness, polyneuropathy, numbness, tingling, Bell's palsy, speech and swallowing difficulties, gait disturbance, depression, paranoia,	Paresthesias, radiculopathy, sleep disturbance, cognitive deficits such as impaired memory and impaired concentration, sensory deficits in areas affected by ACA, encephalopathy, dizziness, polyneuropathy, numbness, tingling, Bell's palsy, speech and swallowing difficulties, gait disturbance,	Meningitis, Cranial-nerve palsies, Encephalitis, Hemiplegia Seizures, Coma, Paresthesias, radiculopathy, insomnia, hypersomnia, narcolepsy, catalepsy cognitive deficits such as impaired memory and impaired concentration, dizziness, polyneuropathy, extra pyramidal symptoms, tingling,

		anxiety, panic attacks, hallucinations, photophobia	depression, paranoia, anxiety, panic attacks, hallucinations, photophobia	Bell's palsy, dysarthria and dysphagia, gait disturbance, flaccid paralysis depression, paranoia, anxiety, panic attacks, hallucinations, photophobia
	Gastro-intestinal	Gastritis, nausea, vomiting, diarrhoea, constipation, stomach pain	Gastritis, nausea, vomiting, diarrhoea, constipation, stomach pain	Gastritis, nausea, vomiting, diarrhoea, constipation, stomach pain, jaundice, hepatomegaly, splenomegaly
	Urogenital	Irritable bladder, interstitial cystitis, testicular or pelvic pain, decreased libido, unexplained menstrual irregularity, unexplained milk production	Irritable bladder, interstitial cystitis, testicular or pelvic pain, decreased libido, unexplained menstrual irregularity, unexplained milk production	Irritable bladder, interstitial cystitis, testicular or pelvic pain, decreased libido, unexplained menstrual irregularity, unexplained milk production ?
	Haemorrhage			Cerebral haemorrhage Petechiae Epistaxis Haemoptysis Haematuria haematemesis
	Fatality rate			
	Spirochaetaemia	Very low density spirochaetaemia in blood, micro-aerophilic and disseminates from hematogenous areas to tissue such as CNS, synovium, skin		High density spirochaetaemia in blood