

# Difference Between Lyme Disease and Lupus

[www.differencebetween.com](http://www.differencebetween.com)

## Key Difference – Lyme Disease vs Lupus

Lupus and Lyme disease are two diseases sharing many common symptoms. Although it is easy for a clinician to identify the difference between Lyme disease and lupus with a proper history and a few standard investigations, for the ordinary public, the similarity in the manner of presentation can be a cause of confusion. **Lupus is basically an autoimmune disease with systemic manifestations; therefore, it has an endogenous origin. But Lyme disease is an infectious disease caused by a pathogen that enters our body through tick bites. Accordingly, Lyme disease is an exogenous disease caused by an outside agent.** This is the key difference between Lyme disease and lupus.

## What is Lyme Disease?

In an overwhelming majority of the cases, Lyme disease is caused by a spirochete named *Borrelia burgdoferi* which enters the human body through the bites of lice or ticks. The other less frequently encountered causative agents are *B.afzelli* and *B.garinii*.

The reservoir of infection is ixodid (hard tick) which feeds on many large mammals. Birds are also responsible for the spread of these parasitic ticks in an ecosystem. As previously mentioned, spirochetes enter the blood stream of a human following a bite of ticks whose adult, larval and nymphal stages have the ability to propagate the infection.

Most of the patients suffering from Lyme disease have a tendency to get Ehrlichiosis as a coinfection.

## Clinical Features

The disease progression happens in three stages and the clinical features vary depending on the stage.

## Early Localized Stage

The most unique feature that defines this initial phase is the appearance of a skin reaction around the site of the tick bite that is named as Erythema migrans. A macular or papular rash can arise about 2-30 days after the tick bite. The rash usually originates in the area adjacent to the tick bite and then spreads peripherally. These skin **lesions** have a characteristic bull's eye appearance with a central clearing. However, these features are not pathognomonic of the Lyme disease. It is possible to have minor general symptoms such as fever, lymphadenopathy, and fatigue during this stage.



**Figure 01: Lyme Disease**

## Early Disseminated Disease

The spread of infection from the original site happens via **blood and lymph**. As the body starts to respond to this, the patient may complain of mild arthralgia and, malaise. In some occasions, development of metastatic erythema migrans can be seen. Neurological involvement becomes apparent usually few months after the initial infection and is confirmed by the occurrence of lymphocytic **meningitis**, cranial nerve palsies, and peripheral neuropathy. The incidence of Lyme disease associated carditis and radiculopathy varies depending on certain epidemiological factors.

## Late Disease

**Arthritis** affecting the large joints, polyneuritis, and encephalopathy are the clinical features frequently seen in the late stage of the disease. Neuropsychiatric problems may arise as a result of the involvement of brain parenchyma. Acrodermatitis chronica atrophicans is a rare complication of advanced Lyme disease.

## Diagnosis

In the initial stage of the disease, the diagnosis can be made based on the clinical features and the history. Culturing of the organisms from the biopsy samples is not usually reliable and is time-consuming (because the process takes at least six weeks to give satisfactory results).

Antibody detection is not useful right at the onset of the disease but gives extremely accurate results during the early disseminated and late stages.

The increased availability of advanced techniques such as PCR has expedited the process of diagnosis and treatment of Lyme disease, minimizing life threatening complications.

## Management

- The most recent guidelines advise not to treat the asymptomatic patients with positive antibody test results.
- Standard therapy consists of a 14-day course of doxycycline (200 mg daily) or amoxicillin (500 mg 3 times daily). But in case of the disseminated disease with arthritis, the therapy should be extended to 28 days.
- Any neuronal involvement should be managed by the administration of beta lactams parenterally for 3- 4 weeks.

## Prevention

- Use of protective clothing
- Insect repellents
- The risk of infection in the first few hours of the tick bite is considerably low. Therefore, removal of the tick immediately decreases the chance of any advanced disease.

## **What is Lupus?**

Lupus is an autoimmune disease with systemic effects. It is also called the disease with a thousand faces because of the variety of ways in which it can present.

Four major clinical variants of lupus erythematosus have been described.

- Systemic lupus erythematosus
- Discoid (neonatal) lupus erythematosus
- Subacute cutaneous
- Systemic

## **Systemic Lupus Erythematosus (SLE)**

This is the commonest clinical variant of lupus. At least four of the following criteria have to be fulfilled to make a diagnosis of SLE

- Malar rash
- Photosensitivity
- Discoid plaques
- Arthritis
- Oral ulcers
- Renal changes
- Serositis
- Neurological involvement
- Hematological changes
- Immunological changes
- Anti nuclear antibodies

The incidence of SLE among females is much higher than that among males. The presence of a malar rash is the unique feature that persuades a clinician to suspect SLE. Although not mandatory, SLE patients can also have vasculitis. Lupus associated fever and arthritis are the other commonly seen clinical features.

## **Discoid Lupus Erythematosus**

The presence of antinuclear antibodies is very rare in this condition. The patient usually describes a nutmeg grater like feel due to hyperkeratosis and atrophy of the hair follicles. These skin changes are results of the inflammatory lesions that are triggered by the exposure to sunlight. Therefore these skin changes predictably aggravate during the summer.



**Figure 02: Lupus**

## **Diagnosis of SLE**

When the aforementioned clinical criteria lead the clinicians to suspect lupus, following test and investigations are performed to confirm the diagnosis.

- Serum Creatinine and urinalysis to assess the renal functions
- CBC differential
- ESR or CRP
- Liver function tests
- Autoantibody tests
- Joint radiography
- Echocardiogram
- Chest radiography
- Arthrocentesis
- Renal biopsy

## Treatment

The following drugs are used in the management of SLE

- Antimalarials
- Anti-inflammatory corticosteroids that are used to control the underlying inflammation. Continuous follow-up is necessary to avoid the complications associated with the prolonged use of corticosteroids.
- NSAIDS
- Disease Modifying Anti Rheumatic Drugs

## What are the similarities between Lyme Disease and Lupus

- Lyme disease and lupus share many common clinical features such as arthritis, fever, headache.
- The involvement of the CNS is seen in both conditions.

## What is the difference between Lyme Disease and Lupus?

Lyme Disease vs Lupus	
Lyme disease is an autoimmune disease.	Lupus is an infectious disease.
Arthritis	
Lyme disease associated arthritis mainly affects the large joints.	Lupus associated arthritis affects the small joints.
Fever	
Fever usually occurs in the early stage of the disease.	Fever occurs indiscriminately in all the stages of disease progression.
Malar Rash	
Malar rash is not seen. Instead, erythema migrans is present as the characteristic feature.	Malar rash is seen as the unique clinical feature.

# Summary – Lyme Disease vs Lupus

Lupus and Lyme disease have unique dermatological manifestations that help in differentiating them from one another. The origin of the two conditions is the main difference between Lyme disease and lupus. Lupus is an autoimmune disease that arises as a result of the production of autoantibodies. But Lyme disease is an infectious disease caused by *Borrelia burgdoferi*.

## Reference:

1. Colledge, Nicki R, Brian R. Walker, Stuart Ralston, and Stanley Davidson. Davidson's Principles and Practice of Medicine. Edinburgh: Churchill Livingstone/Elsevier, 2010. Print.

## Image Courtesy:

1. "Bullseye Lyme Disease Rash" By Hannah Garrison – en:User:Jongarrison (CC BY-SA 2.5) via [Commons Wikimedia](#)
2. "Lupusfoto" By Doktorinternet – Own work (CC BY-SA 4.0) via [Commons Wikimedia](#)

## How to Cite this Article?

**APA:** Difference Between Lyme Disease and Lupus. (2017, September 14). Retrieved (date), from <http://differencebetween.com/difference-between-lyme-disease-and-vs-lupus/>

**MLA:** "Difference Between Lyme Disease and Lupus" *Difference Between.Com*. 14 September 2017. Web.

**Chicago:** "Difference Between Lyme Disease and Lupus." *Difference Between.Com*. <http://differencebetween.com/difference-between-lyme-disease-and-vs-lupus/> accessed (accessed [date]).



Copyright © 2010-2017 Difference Between. All rights reserved