



# UNDERSTANDING SYSTEMIC LUPUS ERYTHEMATOSUS (SLE): UNMASKING THE COMPLEXITIES OF A CHRONIC AUTOIMMUNE DISEASE AND THE EFFICACY OF HOMOEOPATHY.

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## **ABSTRACT**

This abstract aims to provide a concise overview of SLE, highlighting its clinical features, diagnostic challenges, and potential contributing factors. The heterogeneity of symptoms and the variability in disease severity underscore the need for a multidisciplinary approach to diagnosis and management. Advances in understanding the underlying immunopathology and the identification of specific biomarkers have improved diagnostic precision and opened avenues for targeted therapies. However, effective management of SLE often requires a personalized treatment approach, considering the diverse manifestations and individual patient factors.

## **KEYWORDS**

Systemic Lupus Erythematosus (SLE), Autoimmune disease, Immunopathology, Clinical manifestations, Diagnostic challenges, Heterogeneity, Biomarkers, Genetic factors, Hormonal factors, Environmental factors, Multidisciplinary approach, Rheumatology, Personalized medicine, Targeted therapies, Disease severity, Organ involvement, Prognostication, Immunology, Inflammatory disorder.

## INTRODUCTION:



Systemic Lupus Erythematosus (SLE), commonly known as lupus, is a chronic autoimmune disease that affects millions of individuals worldwide. It is a complex and multifaceted condition that can involve various organs and systems within the body. This article aims to provide an overview of SLE, its causes, symptoms, diagnosis, treatment options, and ongoing research, shedding light on this enigmatic disease.

The word “**LUPUS**” comes from the Latin word “for wolf” – which means- “to reflect the mask-like appearance”, - that clients have when they have a lupus facial rash.

The rash is red and thus the word erythematosus means reddened.

## UNDERSTANDING SLE:

### EPIDEMIOLOGY:

SLE occurs when the immune system mistakenly attacks healthy cells and tissues, resulting in inflammation and damage throughout the body. While the exact cause remains unknown, it is believed to be influenced by a combination of genetic, environmental, and hormonal factors. Women, particularly those of childbearing age, are more commonly affected by the disease, although men and children can also develop SLE.

### AETIOLOGY:

Systemic Lupus Erythematosus is a complex autoimmune disease with a multifactorial etiology, which means it arises from a combination of genetic, environmental, and hormonal factors. The exact cause remains elusive, but several factors have been identified as potential contributors:

- **Genetics:** Genetic predisposition plays a significant role in the development of the disease. People with a **family history of autoimmune diseases**, including SLE, have a higher risk of developing the condition. Certain genes, such as those involved in immune system regulation, have been implicated in increasing susceptibility.
- **Environmental Triggers:** Environmental factors can trigger in genetically susceptible individuals. Some common triggers include ultraviolet (UV) light exposure, infections (e.g., Epstein-Barr virus), certain medications, and exposure to certain chemicals and pollutants.
- **Hormonal Factors:** it predominantly affects women, and hormones are believed to play a role in its development. **The disease often begins or exacerbates during puberty, pregnancy, and menopause when there are fluctuations in hormone levels, particularly estrogen.**
- **Immunological Dysfunction:** the immune system loses its ability to distinguish between self and non-self, leading to the production of autoantibodies that attack the body's tissues. This dysregulation of the immune system causes inflammation and damage to various organs and tissues.
- **Epigenetics:** Epigenetic changes, which do not involve alterations in DNA sequence but can affect gene expression, have been associated with SLE. These changes can be influenced by both genetic and environmental factors.
- **Vitamin D deficiency:** Low levels of vitamin D have been linked to an increased risk of developing autoimmune diseases, including SLE.

It is important to note that the development of SLE is likely the result of a combination of these factors. Different individuals may have different triggers and susceptibilities that may lead to the manifestation of the disease. Further research is needed to fully understand the complex etiology and develop better-targeted therapies.

## PATHOGENESIS :

In a healthy individual, the immune system is responsible for protecting the body against foreign invaders, such as bacteria, viruses, and other pathogens. It does this by identifying and attacking these invaders while leaving the body's cells and tissues unharmed.

In SLE, however, the immune system loses its ability to distinguish between self and non-self, leading to an abnormal immune response. Several key immune system components are involved in the development of the disease:

- **Autoantibodies:** In SLE, the immune system produces autoantibodies, which are antibodies that work against our body cells and tissues. These autoantibodies can form immune complexes when they bind to self-antigens, such as DNA or proteins, and deposit in various tissues and organs, triggering inflammation and tissue damage.
- **Inflammation:** The presence of immune complexes and the activation of certain immune cells, such as T cells and B cells, lead to chronic inflammation. This inflammation can affect different parts of the body, including the skin, joints, kidneys, heart, and lungs, resulting in a wide range of symptoms.
- **Complement system:** The complement system is a group of proteins that work together to enhance the immune response. In SLE, the complement system is often overactivated, contributing to the inflammation and tissue damage seen in the disease.
- **Dendritic cells:** Dendritic cells are antigen-presenting cells that play a crucial role in initiating and regulating immune responses. In SLE, abnormal dendritic cell function may lead to the presentation of self-antigens to T cells, further perpetuating the autoimmune response.
- **T cells:** T cells are another type of immune cell that can be involved in the pathogenesis of SLE. They can contribute to the production of pro-inflammatory cytokines, which promote the activation of other immune cells and exacerbate the inflammatory response.

## TYPES

Systemic Lupus Erythematosus can be classified into different types based on specific clinical features or manifestations. It's important to note that SLE is a complex and highly variable disease, and individuals with SLE may experience a combination of these types or have unique presentations. Here are some common types of SLE:

- **Cutaneous Lupus Erythematosus (CLE):** This type of lupus primarily affects the skin. It includes various subtypes, such as:
  - a. **Discoid Lupus Erythematosus (DLE):** Characterized by circular, scaly rashes on the face, scalp, ears, and other sun-exposed areas. These rashes can cause scarring and permanent hair loss.
  - b. **Subacute Cutaneous Lupus Erythematosus (SCLE):** Presents with non-scarring, photosensitive skin rashes that are usually seen on the upper body, neck, and arms.
  - c. **Lupus Profundus (Panniculitis):** Involves deep inflammation of the fat layer beneath the skin, leading to painful nodules and plaques.
- **Systemic Lupus Erythematosus (SLE):** This is the most common and well-known form of lupus, characterized by inflammation and damage affecting multiple organs and systems in the body. Common symptoms include joint pain, fatigue, skin rashes, fever, and organ involvement (such as the kidneys, heart, lungs, and central nervous system).
- **Drug-induced Lupus Erythematosus (DILE):** Some medications can induce lupus-like symptoms in certain individuals. These symptoms are similar to those seen in SLE, but they typically resolve after discontinuing the causative medication.

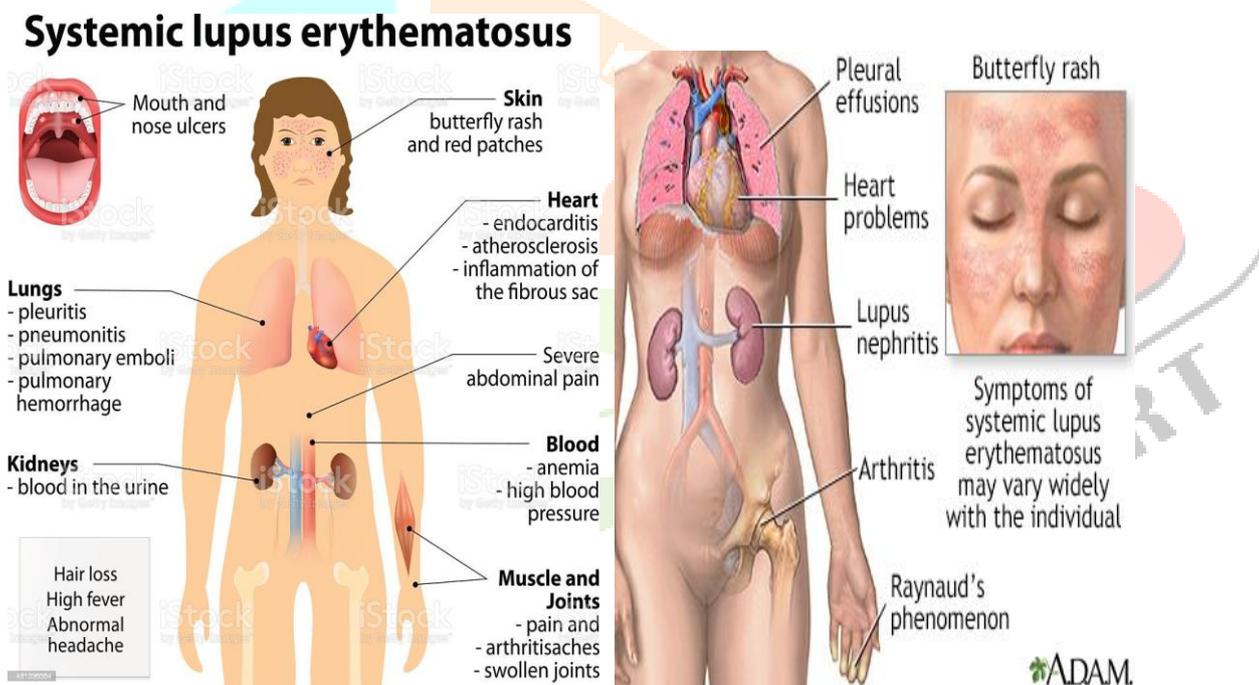
- **Neonatal Lupus:** This type of lupus is rare and occurs in newborn babies born to mothers with certain autoantibodies (anti-Ro/SSA and anti-La/SSB). Neonatal lupus can cause skin rashes, liver problems, and heart abnormalities in the baby, but these symptoms usually disappear over time.

**SYMPTOMS AND ORGAN INVOLVEMENT:** The symptoms of SLE can vary greatly from person to person, making diagnosis challenging.

Common manifestations include fatigue, joint pain, skin rashes (**such as the characteristic butterfly rash across the cheeks**), fever, hair loss, mouth ulcers, and sensitivity to sunlight. Additionally, SLE can affect multiple organs, including the kidneys, heart, lungs, brain, blood cells, and joints.

Organ involvement in SLE can lead to complications such as kidney disease (**lupus nephritis**), cardiovascular issues, respiratory problems, neurological disorders, and an increased risk of infection.

### **DIAGNOSIS & TREATMENT:**



Systemic Lupus Erythematosus (SLE) can be classified based on various criteria, including clinical features, severity, and organ involvement. One of the commonly used classification criteria for SLE is the **American College of Rheumatology (ACR) criteria**, which were revised in 2019. These criteria help clinicians and researchers identify and categorize individuals with SLE for research and diagnostic purposes. The classification criteria require meeting certain criteria from different domains. Here are the classification criteria for SLE:

#### **Constitutional Symptoms:**

Unexplained fever

Weight loss

**Mucocutaneous:**

Rash: typical malar (butterfly) rash over cheeks and nose

Discoid rash: red, raised, and scaly patches

Photosensitivity: skin rash in response to sunlight

**Musculoskeletal:**

Arthritis: non-erosive arthritis affecting two or more peripheral joints

**Renal:**

Proteinuria: greater than 0.5 grams per day or 3+ on urine dipstick testing

Cellular casts: the presence of red blood cells, haemoglobin, or granular casts in the urine

**Neurologic:**

Seizures: in the absence of other causes

Psychiatric symptoms: psychosis, depression, or other mood disorders

**Hematologic:**

Hemolytic anemia

Leucopenia

Lymphopenia

Thrombocytopenia

**Immunologic:**

Positive antinuclear antibodies (ANA) on immunofluorescence testing

Anti-double-stranded DNA (anti-dsDNA) antibodies

Anti-Smith (anti-Sm) antibodies

Antiphospholipid antibodies: presence of lupus anticoagulant, anticardiolipin antibodies, or anti-beta2-glycoprotein I antibodies

Antinuclear Antibodies (ANA) Titer:

Abnormal ANA titer by immunofluorescence: measured in relation to laboratory-specific reference range

Treatment for SLE often focuses on suppressing the abnormal immune response, reducing inflammation, and managing the symptoms. Immunosuppressive medications, anti-inflammatory drugs, and disease-modifying agents are commonly used in the management of SLE to control the autoimmune process and improve the patient's quality of life.

The treatment is centered around managing symptoms, preventing flares, and minimizing organ damage. Medications such as nonsteroidal anti-inflammatory drugs (NSAIDs), corticosteroids, immunosuppressants, and antimalarial drugs are commonly prescribed to control inflammation and modulate the immune response. In addition to medications, lifestyle modifications, including sun protection, regular exercise, a balanced diet, stress management, and smoking cessation, are recommended to help manage the disease.

To classify as SLE, a patient must satisfy at least one clinical criterion and at least one immunologic criterion, or they must have biopsy-proven lupus nephritis with ANA or anti-dsDNA antibodies. It's important to note that these criteria are intended for classification purposes and may not be applicable for diagnosing early or incomplete forms of SLE.

## **SKIN MANIFESTATIONS OF SLE**

### **Skin Manifestations of Systemic Lupus Erythematosus (SLE): Understanding the Dermatological Features of the Disease**

Cutaneous manifestations are common in SLE and can range from mild rashes to more severe and debilitating conditions. This article explores the different skin manifestations associated with SLE, their characteristics, and their significance in diagnosing and managing the disease.

#### **Butterfly Rash (Malar Rash):**

One of the most recognizable skin manifestations of SLE is the butterfly rash, also known **as the malar rash**. It typically appears as a red or purplish rash across the cheeks and bridge of the nose, resembling the shape of a butterfly. The rash can be flat or raised and may be accompanied by photosensitivity, worsening with sun exposure. The butterfly rash is often one of the early signs of SLE, although it can occur at any stage of the disease.



#### **Discoid Lupus Erythematosus (DLE):**

Discoid Lupus Erythematosus (DLE) is a specific form of cutaneous lupus that primarily affects the skin. It presents as round or oval-shaped red patches with scaly or crusty lesions. These patches are typically found on sun-exposed areas such as the face, scalp, ears, and neck. DLE lesions can cause permanent scarring and hair loss if not properly treated. It is important to note that DLE can occur independently or coexist with systemic lupus.

#### **Photosensitivity:**

Photosensitivity is a common feature of SLE, where the skin becomes overly sensitive to sunlight and artificial ultraviolet (UV) light sources. Exposure to UV radiation can trigger or worsen lupus symptoms, including skin rashes and joint pain. Individuals with SLE are advised to protect their skin by using a broad-spectrum sunscreen, wearing protective clothing, and avoiding direct sunlight during peak hours.

#### **Subacute Cutaneous Lupus Erythematosus (SCLE):**

Subacute Cutaneous Lupus Erythematosus (SCLE) is characterized by annular or psoriasiform (psoriasis-like) lesions on sun-exposed areas. The lesions are typically red, scaly and may have raised borders. SCLE rashes are less severe than DLE and usually do not result in scarring. However, they can be highly photosensitive, and their presence may indicate systemic involvement in SLE.

## Vasculitis:



Vasculitis refers to inflammation of the blood vessels, which can occur in SLE. Cutaneous vasculitis presents as purplish spots or nodules on the skin, often on the lower extremities. These lesions may be tender or painful and can ulcerate in severe cases. Vasculitis is associated with immune complex deposition in the blood vessel walls and can be a sign of more extensive disease involvement.

## Other Skin Manifestations:

Apart from the aforementioned skin manifestations, SLE can present with other dermatological features, including:

- **Alopecia:** Hair loss, either in patches or diffusely, is common in SLE. It can be reversible and may occur due to inflammation or certain medications used to treat the disease.
- **Raynaud's Phenomenon:** Raynaud's phenomenon, characterized by color changes in the fingers and toes upon exposure to cold or stress, can also be seen in SLE. It occurs due to abnormal blood vessel spasms and can cause pain, numbness, and tingling.
- **Oral and Nasal Ulcers:** Painful ulcers may develop in the mouth or nose, leading to discomfort and difficulty in eating and speaking. These ulcers are often recurrent and can be a source of ongoing symptoms for individuals with SLE.

## Conclusion:

While the disease poses significant challenges for diagnosis and treatment, ongoing research and advancements in understanding the disease are paving the way for more effective management strategies. By raising awareness, supporting research efforts, and providing comprehensive care, we can contribute to a better future for individuals affected by SLE.

## HOMOEOPATHIC THERAPEUTICS

Below are some homeopathic remedies that are traditionally considered in the context of SLE:

### **Arsenicum album**

Useful when there is restlessness, anxiety, and a sense of insecurity.

Helpful for individuals with fatigue and weakness, especially worsened at night.

### **Lachesis:**

Indicated when there are circulatory problems and a tendency to bleed easily.

Suited for individuals who feel worse after sleep and have a sensitivity to touch.

### **Sulphur:**

Considered when there are skin manifestations, itching, and burning sensations.

May be useful for individuals with heat sensitivity and a tendency to worsen with warmth.

### **Natrum muriaticum:**

Indicated for those who are emotionally reserved and may have a history of grief or emotional disturbances.

May be helpful for skin manifestations and joint pains.

### **Causticum:**

Considered when there is muscle weakness and a tendency for the muscles to become stiff.

Suited for individuals with joint pain and urinary problems.

### **Belladonna:**

Useful in acute flare-ups with sudden onset of symptoms, such as high fever and inflammation.

May be indicated for individuals with sensitivity to light and throbbing headaches.

### **Apis mellifica:**

Considered when there is swelling, especially in the joints or skin.

May be helpful for individuals with a burning and stinging sensation.

### **Thuja occidentalis:**

Indicated when there are skin manifestations, warts, and a history of vaccinations.

Suited for individuals with a sense of being "fixed" or stuck.

It's important to remember that homeopathic treatment is highly individualized, and the selection of a remedy is based on a person's specific symptoms, mental and emotional state, and overall constitution.

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