Lupus erythematosus is a chronic inflammatory disease of unknown aetiology that principally affects middle aged women.

It has traditionally been regarded as an immune disorder of connective tissue, along with scleroderma and dermatomyositis. Three major clinical variants are recognised: chronic discoid lupus erythematosus, which involves only the skin; systemic lupus erythematosus (SLE), a multisystem disease; and subacute lupus erythematosus, in which distinct cutaneous lesions are sometimes associated with mild systemic illness. There are also several less common clinical variants, including neonatal lupus, bullous lupus erythematosus and lupus panniculitis.

**Discoid lupus erythematosus (DLE)**

The typical discoid lesions of lupus erythematosus (DLE) are sharply demarcated, erythematous, scaly patches with follicular plugging. They usually involve the skin of the face, often in a butterfly distribution on the cheeks and bridge of the nose. The neck, scalp, eyelids, lips, oral mucosa and hands (including the nails) are sometimes involved. There is a female preponderance, and DLE is rare in children. However, childhood cases have a high level of transition to systemic disease. The lesions may undergo atrophy and scarring.

There are numerous clinical variants of DLE including: annular lesions, papulonodular lesions, tumid lupus erythematosus, lymphocytic infiltration of the skin (of Jessner and Kanof) and linear lesions.

DLE is characterised by a lichenoid reaction pattern and a superficial and deep dermal infiltrate of inflammatory cells that have a tendency to accumulate around the pilosebaceous follicles. The lichenoid reaction (interface dermatitis) takes the form of vacuolar change (liquefaction degeneration), although there are always scattered Civatte bodies (apoptotic keratinocytes). In lesions away from the face, the number of Civatte bodies is greater and a few colloid bodies may be found in the papillary dermis. In older lesions, there is progressive thickening of the basement membrane, which is best seen in a PAS stain.

The dermal infiltrate is composed predominantly of lymphocytes and a few macrophages. Mucin is sometimes increased in classical DLE. In tumid lesion, there is an increase in dermal mucin in all cases, often accompanied by subepidermal oedema. Epidermal involvement is uncommon in tumid lupus. The features of tumid lupus have a considerable overlap with those of Jessner’s lymphocytic infiltrate, supporting a continuous spectrum between the two disorders.

**Figure 1. Discoid lupus with superficial and deep dermal inflammation**

**Figure 2. Discoid lupus**
Direct immunofluorescence of the involved skin in discoid lupus will show the deposition of immunoglobulins, particularly IgG and IgM along the basement membrane zone in 50-90% of cases. Complement components are present less frequently. This so-called ‘lupus band test’, should always be interpreted in conjunction with the clinical and histological findings, because a similar pattern of staining may be seen in chronically sun-exposed skin. Regardless of the immunofluorescence findings, a definite diagnosis of DLE can only be made with the finding of a lichenoid reaction in the H and E stained sections.

**Subacute lupus erythematosus**

Subacute lupus erythematosus is characterised by recurring, photosensitive, non-scarring lesion that may be annular or papulosquamous in type. They are widely distributed on the face, neck, upper trunk and extensor surfaces of the arms. The patients frequently have a mild systemic illness with musculoskeletal complaints and serological abnormalities. Cases with overlap between the systemic and subacute form of lupus have been reported. There are a number of clinical presentations including association with certain drugs, radiation therapy, and internal malignancies. Some of the drugs associated with subacute lupus erythematosus include antihistamines, calcium channel blockers, doxycycline, phenytoin and thiazides. A drug aetiology should always first be excluded as the cases of subacute lupus erythematosus and any potential culprit drugs ceased.

The histological features differ only in degree from those seen in discoid lupus erythematosus. Usually there is more basal vacuolar change, epidermal atrophy, dermal oedema and superficial mucin than in discoid lupus, but there is also less hyperkeratosis, pilosebaceous atrophy, follicular plugging, basement membrane thickening and cellular infiltrate. The pattern can be characterised as a pauci-inflammatory, vacuolar, lymphocytic interface dermatitis. Apoptotic keratinocytes (Civatte bodies) are sometimes quite prominent in subacute lupus erythematosus, and they may be found at varying levels of the epidermis, resembling erythema multiforme. The infiltrate is usually confined more to the upper dermis than discoid lupus. There are no specific histological differences between drug induced subacute lupus erythematosus and idiopathic cases.
Systemic lupus erythematosus (SLE)

In SLE, the changes in the skin are part of a much more widespread disorder. Four clinical manifestations are particularly important as criteria for the diagnosis of SLE:

- skin lesions
- renal involvement
- joint involvement
- serositis.

The coexistence of the first two of these manifestations is sufficient to justify a strong presumption of the diagnosis.

Cutaneous lesions take the form of erythematosus, slightly indurated patches with only a little scale. They are most common on the face, particularly the malar areas. The lesions are usually more extensive and less well defined than those of DLE and devoid of atrophy. Scarring is an important complication of all forms of lupus erythematosus. The lesions may spread to the chest and other parts of the body. Facial oedema is another presentation. Skin lesions do not develop in approximately 20% of patients with SLE. The digits, calves and heels are involved in the rare chilblain (perniotic) lupus, which results from microvascular injury in the course of SLE.

The cutaneous lesions of SLE show predominant vacuolar change involving the basal layer. Civatte body formation is not usually a feature. Oedema, small haemorrhage, and a mild infiltrate of inflammatory cells, principally lymphocytes are present in the upper dermis. There is usually some mucin deposition, which can help distinguish cases of lupus erythematosus from a polymorphous light eruption, which can share some overlapping histological features. Hematoxyphilic bodies – altered nuclei that are the tissue equivalent of LE cells in the blood – are found rarely in the skin, in contrast to visceral lesions where they are not infrequent. There is also an increasing number of reports of Kikuchi’s disease among patients with SLE.

Rare variants of lupus erythematosus

Neonatal lupus erythematosus is a rare syndrome characterised by a transient lupus dermatitis developing in the neonatal period accompanied by a variety of haematological and systemic abnormalities, including congenital heart block. The cutaneous manifestation resembles those seen in subacute lupus erythematosus. Bullous lupus erythematosus is a rare form of SLE, resulting in skin eruptions that clinically resemble those seen in dermatitis herpetiformis. Histologically there is a subepidermal vesicle with neutrophils in the dermal infiltrate. Immunofluorescence may be useful in distinguishing cases of bullous lupus, with IgA more likely to be deposited at the dermo-epidermal junction in dermatitis herpetiformis.

Lupus panniculitis (lupus profundus) presents clinically as firm subcutaneous inflammatory nodules, from 1 – 4cm or more in diameter, situated on the head, neck, arms, abdominal wall, thighs or buttocks. The clinical diagnosis may be difficult if there are no other clinical manifestations of lupus erythematosus. It is a complication in approximately 1 – 3% of patients with cutaneous lupus erythematosus, both systemic and discoid forms. There is a lobular panniculitis with a dense lymphocytic dermal inflammatory infiltrate with associated epidermal and dermal changes of lupus erythematosus. There is usually secondary sepal involvement resulting in a mixed pattern of panniculitis.

A characteristic feature is the presence of lymphoid follicles in up to 50% of cases. Differentiation from subcutaneous panniculitis like T cell lymphoma, is therefore important.

References

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