

## A wolf howling at the sun: a historic perspective of actinotherapy in Systemic Lupus Erythematosus

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**Abstract.** The letter illustrates a particular method of therapy for systemic lupus erythematosus in use at the beginning of the 20<sup>th</sup> century

**Key words:** systemic lupus erythematosus, actinotherapy, Moritz Kaposi, Niels Ryberg Finsen

Systemic Lupus Erythematosus -SLE from this point onward- is arguably the most famous disease which takes its name directly from a typically nocturnal animal. SLE was initially considered only a skin disease of purely dermatological matter, and later, only after the second half of 20<sup>th</sup> century, its systemic character and its relations with connective tissue became clear.

Since the Middle Ages the cutaneous ulcers resembling the ripping-off bites to human skin and flesh by this fierce wild animal were alternatively named *cancer*, and *lupus* with different meanings: while the former -*cancer*- could involve any body tissue or organ, the latter -*lupus*- mostly, or nearly always, referred to a skin ulcerative disease. Intriguingly, SLE was also mistaken for cutaneous tuberculosis- *scrofula*. A non-secondary phenomenon is the link between werewolf imaginary myth (a man turning into a half human-canine being during full-moon nights) and SLE- suffering patients (1).

An intriguing question arise: did medieval physicians understand the connection between sunlight exposure and these dermatological phenomena? It is necessary to wait until Moritz Kaposi (1837 – 1902) and his mentor Ferdinand Ritter von Hebra (1816-1880), who contributed to establish the new ‘Vienna School of Dermatology’, to see a further understanding of this disease. Kaposi not only used the term *lupus erythematosus disseminatus* for the first time in history but also

first described and coined the famous nosographical identity *discoïd lupus* or *fixed lupus* exclusively referring to cutaneous form of the disease. Thus, during the late 19<sup>th</sup> century the term acquired a twofold meaning: *L. vulgaris*, a form of secondary cutaneous tuberculosis, affecting millions of patients in the urban centers of Europe from ancient times till the antibiotic era and, *Systemic L. erythematosus*, -SLE- a chronic inflammatory autoimmune disease of the connective tissue (2).

On the basis of these discoveries and a more modern classification, along with the ongoing technical and scientific discoveries, new therapies established, such as physical therapies: actinotherapy -or phototherapy- saw a growing interest in the scientific community especially applied to dermatology and this new approach rapidly spread across Italy. Many medical textbooks published in this period mention this specific form of therapy. For example, Niels Ryberg Finsen (1860-1904, Nobel prize for Medicine in 1903) studies on the properties of actinic light and its “*exciting*” and “*bactericidal*” properties were popular within Italian doctors. However, Finsen asserted the use of concentrated actinic light to cure a broader spectrum of diseases including “*superficial, parasitic, localized*” pathologies (3).

In SLE actinotherapy was used in addition to classic medical therapies, including the administration of arsenic, phosphorus, iodine, sulfur, ammonia, phenic acid, lactic acid, tar, mercuric chloride, resor-

cinol and other ointments. Scarification was indeed a common procedure (4).

A typical "radiotherapy" session was carried out using a "Crookes tube" for 10 minutes every other day with local cutaneous application of electrical high frequencies via a condensing electrode.

On the other hand, Finsen therapy used concentrated light beams and was also very popular in *lupus vulgaris* treatment, since it was reported to be "extremely effective" (4, 5).

These results of efficacy must take into account that they were used to treat both SLE and also tubercular cutaneous forms.

It's peculiar to mention that nowadays sunlight exposure is considered potentially harmful, since approximately two-thirds of SLE suffering patients experience marked photosensitivity. This condition is such a common feature of the disease that was included in the historical ACR '97 classification of SLE (6).

However, it is interesting to note that between the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, physical therapy with light contributed to the therapeutic practice of the period.

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