The first images of atopic dermatitis: An attempt at retrospective diagnosis in dermatology

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Background: Atopic dermatitis was defined in 1933. Earlier descriptions have yet not been thoroughly studied.

Objective: Our purpose was to identify the first images of atopic dermatitis among historical illustrations of skin diseases.

Methods: We posted 20 selected images on an Internet site and asked experts in pediatric dermatology to decide whether or not they represented atopic dermatitis.

Results: By means of the Delphi technique, a consensus could be reached for 19 of the 20 images. The experts' accuracy was good.

Limitations: Thirty-one experts participated. No validated criteria were used for the selection of the images.

Conclusion: The first representations of atopic dermatitis are engravings of skin diseases described under the names of *strophulus confertus* (Willan, 1796), *lichen agrius* (Willan, 1796), *porrigo larvalis* (Bateman, 1816), and *eczema rubrum* (Rayer, 1835). Teledermatology techniques can be reliably applied to retrospective diagnosis. (J Am Acad Dermatol 2005;53:684-9.)

Atopic dermatitis (AD) is one of the most common skin diseases, and its prevalence has increased steadily over the last several decades.[1] Because there is no specific marker for AD, the diagnosis relies primarily on clinical examination. To improve accuracy, reproducibility, and reliability in the diagnosis of AD, clinical criteria were proposed in 1980 by Hanifin and Rajka.[2] Those criteria are historical successors of the first criteria proposed by Wise and Sulzberger[3] to delineate the disease. In 1994, the United Kingdom's Working Party showed that a combination of 4 clinical criteria could achieve a satisfying sensitivity and specificity for the diagnosis of AD.[4]

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To determine the value of each of the individual criteria studied by the UK Working Party, it was mandatory to know whether the index patients had AD or not. In this setting, the clinical opinion of expert physicians, the "physician's diagnosis" prevailed before any further evaluation of candidate criteria.[5] The UK Working Party could also measure the level of agreement between clinicians participating in the validation process.[6]

We recently studied the history of AD.[7] Atopic symptoms can be traced back to ancient Roman times.[8] Although descriptions of itchy chronic cephalic eruptions in infants before 1800 probably refer to modern AD, a retrospective diagnosis is risky. The development of clinical medicine around 1800 led to more accurate observations. For skin diseases, Willan and Bateman initiated a novel method, focusing on the clinical description of skin disorders and emphasizing what would be called primary (elementary) lesions. In addition to this Copernican revolution, Willan[9] also published the first illustrated textbook of skin diseases. This innovation was soon adopted by other prominent 19th-century dermatologists, whether they followed Willan-Bateman's methodological principles (ie, Rayer[10]) or other nosologic conceptions (ie, Alibert[11]).

Early 19th-century dermatology texts are often difficult to understand by modern dermatologists because they use terms that are now obsolete (eg, *strophulus, dartre,* or *porrigo*) or because terms such as lichen, herpes, and prurigo now have a different accepted meaning.

Although contemporary dermatologists are not familiar with ancient medical terms, their diagnostic skills rely mostly on image analysis. In parallel with our historical survey of clinical precursors of AD,[7] we tested whether dermatologists not influenced by historical sources could make a reliable diagnosis of AD on the basis of historical illustrations.

MATERIAL AND METHODS

Illustrations

In searching the history of AD, we reviewed a significant part of the relevant literature, starting with the first dermatological book published in 1572 by Mercurialis without illustrations.[12] We also reviewed the first dermatological atlases made of engravings, clinical photographs found in books or in "the Photographic Museum of the Hôpital Saint-Louis" collection in Paris, and the collection of wax moulages of this hospital.

Within this material, we selected 20 illustrations described under different headings covering the period 1796 to 1936. The major criteria for including or not including an image were the accompanying textual reference to a chronic/relapsing itchy skin disorder, an image that matched current clinical aspects of the disease, or both. We favored illustrations from the earliest authors so as to identify the first iconographic descriptions of AD.

The selected illustrations (Table I) were posted on the Internet site of the French Society for the History of Dermatology (http://www.bium.univ-paris5.fr/sfhd/). The figures can still be seen on this Web site, under the heading "atopic dermatitis diagnostic test." The pictures are in JPEG color format (24 bits), their size is 525 × 700 pixels, and the average weight is 70 KiloOctets.

Expert panel

An electronic mailing was sent to all members of the French Society for Pediatric Dermatology (SFDP). These dermatologists can be considered as experts in the treatment of AD. SFDP members were asked to visit the site, to examine the illustrations, and to make a judgment. The question posed was: is this a case of AD? Replies accepted were as follows: "yes," "no," or "I don't know." The pictures were available without any further source of information. The distribution of the lesions and the age of the patient were apparent on some of the images. However, panelists were not instructed to use clinical criteria, but to make a global clinical diagnosis.

Delphi technique

To determine whether a consensus could be reached among experts, we used the Delphi technique. The Delphi technique is a consensus method used to determine the extent of agreement on an issue. The technique involves asking a panel of experts to take part in a series of rounds to identify, clarify, refine, and finally to gain consensus on the particular issue.[13] During round 1, the expert pediatric dermatologists were invited to provide opinions on their agreement with the diagnosis of AD for each illustration (AD yes/no/no opinion). The opinions (% AD diagnoses for each illustration) were summarized and included in a repeat version of the questionnaire. During round 2, participants were asked to provide their opinion again, with the opportunity to change their opinion in view of the group's responses. At this stage, a definite positive or negative answer was required. A "don't know" answer was not permitted. As an acceptable degree of consensus was obtained, the process ceased after round 2.

Statistical evaluation

In the absence of a "gold standard" for a retrospective diagnosis of AD, consensus of more than 75% of the experts after two rounds of the Delphi technique was considered to be the "gold standard" for each illustration. Sensitivity, specificity, and accuracy of each expert (compared with the "gold standard") were further analyzed.

RESULTS

Consensus for the clinical diagnosis of AD, based on the examination of historical illustrations

Thirty-one SFDP members sent an electronic response. Among them, 9 were senior hospital-based academic pediatric dermatologists, and 22 were junior pediatric dermatologists. The last column of Table I shows the survey results. For 19 of 20 figures, a consensus could be reached in two rounds. At the first round, the only image to be diagnosed as AD by 100% of the experts was a rather recent clinical photograph (image 18). The second round brought two other images to unanimity (images 3 and 9). These pictures are interesting from a historical perspective because they represent entities described by pioneer dermatologists. Image 3 represents the face of a child with *porrigo larvalis willani*, first published by Bateman in 1816. Image 9 represents the crease of an elbow with *eczema rubrum*, published by Rayer in 1835.

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