Elementary lesions in dermatological semiology: literature review*

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Abstract: Discrepancies in the terminology of elementary lesions persist when texts from Dermatology and Semiology books are compared, which can cause some confusion in both the teaching of undergraduate medical students and the learning acquired by professionals in the field. This review aims to compare and clarify the differences in the description of elementary lesions by many authors, used as references for specialists in dermatology.

Keywords: Dermatology; Review; Teaching; Terminology

INTRODUCTION

As regards elementary lesions, used in the teaching of semiology within the Dermatology course, historically, two semantic models were initially described: the Essentialist model, proposed by Robert Willan (1757-1812), followed by Thomas Bateman at the end of the eighteenth century, and the Nominalist model, proposed by Ferdinand Hebra (1816-1880) in the nineteenth century.1,2

The Essentialist model considers the description of the lesion, taking into consideration its morphological characteristics, such as elevation, consistency, size, and depth, as well as its clinical evolution, that is, the transformation of the lesion in its lifespan and not only the description of the lesion at the exact moment in which it is observed.3 This model was accepted and followed by L. T. Bett (França), in which such renowned French authors as Cazenave, Rayer (1793-1867), Darier (1856-1936), and Robert Degos (1904-1987) were loyal to the “Willianist” model until the end of the twentieth century, and it is still used as a references even today.4-7

By contrast, in the Nominalist model, Hebra excluded the morphological evolution of the elementary lesion and objectively considered a clear meaning referent to the terminology of known criteria found in the lesion upon observation (“status praesens”).2,3 Other modifications carried out by Hebra include: the inclusion of the term ‘secondary lesions’, the denomination of the lesions according to size (comparing them with lentils and walnuts, for example), as well as the anatomic detection and distribution of the lesions. This model was improved by Kaposi and disclosed throughout Europe at the end of the nineteenth century, mainly through the Vienna School of Dermatology and later spread to the United States of America (USA), remaining even today as a reference in the majority of Dermatology textbooks in English.8,9

The definition of the terminology of elementary lesions, used in the teaching of semiology in Dermatology courses, should be based on descriptive criteria accepted and approved by the majority of authors, aimed at achieving an overall consensus. However, the absence of an agreement among the many authors about the description of these lesions can generate differences in the chapters on dermatological semiology, used as study references and, consequently, doubts in the description of the physical exam.

AIM

Compare the description and analyze possible divergences in the semantic terminology of elementary lesions in textbooks used by medical students and professionals in the field of Dermatology.

METHODS

Seven reference books in basic Dermatology were consulted, contemplating four basic authors: Azulay, Bechelli-Curban, Sampaio-Rivitti, and Belda Jr, as well as three authors from international medical literature: Bolognia et al., Fitzpatrick et al., and Rook A.10-16 The descriptions of elementary lesions within these authors’ works were compared, searching for similarities and differences in terminology.

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RESULTS
The authors consulted in this study agreed on the description of the majority of dermatological lesions, especially regarding lesions considered to have a liquid content and regarding the lesions with tissue loss. However, discrepancies in terminology, described as macule, papule, nodule, tubercle, and plaque were observed and illustrated in charts 1 to 5, respectively.

DISCUSSION
Discrepancies regarding the nomenclature of elementary lesions were observed among all of the authors reviewed in this study. As regards the term “macule”, the differences are linked to the size. Most of the authors consulted in this study considered any size, while only Bolognia et al. and Fitzpatrick et al. defined a limit of between 1.0 cm and 0.5 cm, respectively, though they do cite.

Chart 1: Comparison of terminology referent to MACULE among the consulted Dermatology textbooks

| Author(s)                                                                 | Terminology Description                                                                                                                                 |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Azulay RD; Azulay DR, Abulafia-Azulay L; Dermatologia, 6ª-Ed., 2013.       | Macule or spot: any and all changes in skin color, no ridges, regardless of nature, cause, or mechanism. Do not cite size. |
| Bechelli-Curban; Compêndio de Dermatologia, 6ª-Ed., 1988.                | Macule or spot: change in skin color, no ridges or thickening, varied sizes: lenticular, nummular, plaque and large plaque. |
| Belda Jr W; Di Chiachio N; Criado PR; Tratado de Dermatologia, 2ª- Ed., 2014. | Macule or spot: modifications in skin color, no change in skin ridge or consistency. Can be of two types: pigmentary or blood vessel. Do not cite size. |
| Bologna JL; Jorizzo J; Rapini RP; Dermatology, 2nd Ed., 2008.            | Small, flat, non-palpable lesion. Prefer to consider the size up to 1.0 cm. Cite that some authors limit the size to 0.5 cm, others to 1.0 cm, and others to any size. Consider “patch” as a macule of greater than 1.0 cm. |
| Fitzpatrick et al., Dermatology in General Medicine, 7thEd., 2013.       | Flat, non-palpable lesion, at the same level as the surface around it, with change in color. Consider “patch” lesion similar to macule, but greater than 0.5 cm. |
| Rook A et al.; Textbook of Dermatology, 8th - Ed., 2010.                 | Circumscribed change in skin color. Do not mention size. |
| Sampaio e Rivitti; Manual de Dermatologia, 3ª- Ed., 2008.                | Change in skin color, no ridges or depressions. Includes blood vessel or pigmentary spots. Do not cite size. |

Chart 2: Comparison of terminology referent to PAPULE among the consulted Dermatology textbooks

| Author(s)                                                                 | Terminology Description                                                                                                                                 |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Azulay RD; Azulay DR, Abulafia-Azulay L; Dermatologia,6ª- Ed., 2013.       | Efflorescence of hard consistency, surface, measuring 0.5 cm. Causes certain elevation of the skin and, upon involution, does not leave a scar. Upon palpation, there is no significant dermal representation, as the changes are limited to the papillary dermis (contrary to tubercle). |
| Bechelli-Curban; Compêndio de Dermatologia, 6ª-Ed., 1988.                | Solid circumscribed elevation of up to 0.5 cm (varying from punctiform to lenticular); dissemination in disc: nummular or plaque (papulous or placard plaque) |
| Belda Jr W; Di Chiachio N; Criado PR; Tratado de Dermatologia, 2ª- Ed., 2014. | Circumscribed lesion, less than 1.0 cm, elevated, with ridges in relation to the adjacent planes, and flat surface, epidermal, dermal, and mixed. |
| Bologna JL; Jorizzo J; Rapini RP; Dermatology, 2ndEd., 2008.             | Palpable lesion, small, circumscribed, surface, elevated, less than 1.0 cm. Cited that some authors consider the size of up to 0.5 cm. |
| Fitzpatrick’s et al.; Dermatology in General Medicine 7th Ed., 2013.     | Solid lesions, elevated, up to 0.5 cm. |
| Rook A et al.; Textbook of Dermatology, 8th Ed., 2010.                   | Palpable lesion, circumscribed, up to 0.5 cm. |
| Sampaio e Rivitti; Manual de Dermatologia, 3ª- Ed., 2008.                | Solid lesion, elevated, circumscribed, up to 1.0 cm, by epidermal, dermal, or mixed pathological process. |
possible differences. When a “macule” is described (synonym for “spot”), one must describe the size and topography. The definition of the spot affects changes only in skin color, whether of blood vessel origin or of pigmentary origin. How should one describe a hypochromic or hyperchromic spot outside of the size range between 0.5 cm and 1.0 cm? Prior literature suggests the use of the following sizes for spots: punctiform, lenticular (size of a lentil), nummular (size of a coin), in plaque (size of one’s palm), and in large plaque (larger than a plaque).17

As regards the term “papule”, all of the authors agreed on the description as a solid, raised lesion, although there were differences in size in which some authors, such as Azulay et al.10, Bechelli-Curban13, Fitzpatrick et al.15 and Rook16 considered a size of up to 0.5 cm, while Belda Jr, W et al.13, Bolognia et al.14 and Sampaio-Rivitti12 considered up to 1.0 cm. Also as regards the term “papule”, Azulay et al.10 reported that the lesion described as a “papule” evolves without a scar. These authors also consider that, upon palpation, this lesion has no dermal significance. Hence, as a consensus, they suggest the description of “papule” as a lesion with a solid content with up to 1.0 cm in diameter. When the lesion is larger than 1.0 cm,
the term “tubercle” is preferred. These lesions can also be considered punctiform and, when coalesced, form a plaque. The characteristics of color, whether shiny or not, whether flat or semi-round, whether covered by blisters or crusts, or by scaling, can be added to the description.17

As regards the term “tubercle”, Belda Jr, et al.13, Bolognia et al.14 and Rook15 do not use this term, while Sampaio-Rivitti12 use it, but consider the term to be outdated. Authors such as Azulay et al. and Bechelli-Curban consider this terminology and classify it as a solid lesion of greater than 0.5 cm, that is, what many other authors call a ‘papule’ or ‘nodule’.10,11 Azulay et al. add that the lesion results from infiltration in all dermises and generally involutes with a scar.10 Thus, it can be considered that a tubercle is a solid lesion that is greater than 1.0 cm in size. The tubercle is different from a nodule in that the former is located above the tangential plane of the skin, while the latter is more visible than palpable, with the epidermis almost completely covering the wound area, without considering possible signs of inflammation.12 Bechelli-Curban describe the nodule as a process of the subcutaneous tissue.13 Even if considered to be outdated (Sampaio-Rivitti), the tubercle is a nodule.12

As regards the term “plaque”, differences were also found among the authors, in which Bechelli-Curban and Sampaio-Rivitti do not cite the term in an isolated manner, but rather as a reference to the size of other elementary lesions, whereas the other authors consider the term ‘plaque’ for flat lesions or raised lesions of greater than 1.0 or 2.0 cm.11,12 Therefore, the definition of ‘plaque’, according to the authors, must be added if the plaque is flat or raised. These terms are used to explain the definition of the elementary lesion, but are not considered to be medical terminology – flat or raised lesions.

By contrast, Azulay et al., as well as Bechelli-Curban, consider the term to be a raised plateau lesion, which arises from the convergence of many papules.10,11

Finally, the terminology in which the greatest differences in meaning were observed was of the elementary lesions described as a ‘nodule’. Each author described this with some similarities, yet with differences regarding the size and depth of the lesion. Most authors consulted in this study described the ‘nodule’ with variations in its depth, which can be epidermal and/or dermal and/or subcutaneous, which results in differences in the physical exam as regards the predominance of visibility or palpation of the lesion. Bechelli-Curban described the term ‘nodule’ as a lesion located in the subcutaneous tissue.12 Many differences were also observed as regards size, in which some authors, such as Bolognia et al.14, did not cite this term; others, such as Azulay et al.,13 consider the lesion with variable dimensions; others, such as Bechelli-Curban12, consider the term as being the size of a pea or a hazelnut; others, such as Fitzpatrick et al.15 and Rook et al.16, consider this term when it is larger than 0.5 cm; while others, such as Sampaio-Rivitti12 and Belda Jr et al.13, consider this term when the lesion is between 1.0 and 3.0 cm. Authors claim that the nodule should be described as visible or palpable. The characteristics of the skin that surround it are described, as is the consistency, whether it is adherent or not to deep planes. The description of the nodule is quite similar to the description of lymph nodes. Thus, the size of the nodule can be described when comparing it to a pea, a lentil, a hazelnut, or a quail egg, or it can be measured approximately in centimeters. When the nodule is not specific to palpation, one can employ the name “nodular plaque”.17

The consensus for the proper semantics of dermatological

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**Chart 5: Comparison of terminology referent to NODULE among the consulted Dermatology textbooks**

| Author(s)                                      | Description                                                                 |
|------------------------------------------------|-----------------------------------------------------------------------------|
| Azulay RD; Azulay DR, Abulafia-Azulay L; Dermatologia, 6ª-Ed., 2013. | Efflorescence of hardened consistency, of varying dimensions, sometimes visible by simple inspection, other times recognized by palpation, resulting from the increase in the number of cells in the dermis, generally deep and/or at the level of the subcutaneous tissue. |
| Bechelli-Curban; Compêndio de Dermatologia, 6ª-Ed., 1988.          | Solid formation in the subcutaneous tissue, many times more palpable than visible. Size varies from that of a pea to that of a hazelnut (larger would be called nodular plaque). Variable consistency and color. |
| Belda Jr W; Di Chiachio N; Criado PR; Tratado de Dermatologia, 2ª-Ed., 2014. | Solid cell infiltrate, circumscribed, persistent, dermal (when elevated) and hypodermal (when more palpable than visible), generally quite limited, from 1.0 to 3.0 cm. |
| Bolognia JL; Jorizzo J; Rapini RP; Dermatologia, 2nd Ed., 2008.   | Firm lesion (hardened), thicker and deeper than the papule or plaque. If subcutaneous, it may not elevate the skin. |
| Fitzpatrick’s et al.; Dermatology in General Medicine 7thEd., 2013. | Solid lesion, palpable, round or elliptic, greater than 0.5 cm. Divides into: epidermal; epidermal/dermal; dermal/subepidermal; subcutaneous. |
| Rook A et al.; Textbook of Dermatology, 8th Ed., 2010.             | Solid mass on the skin > 0.5cm, observed as an elevation or can be palpated. Can involve the epidermis or the dermis; dermis and subcutaneous tissue; or only the subcutaneous tissue. |
| Sampaio e Rivitti; Manual de Dermatologia, 3ª-Ed., 2008.           | Solid formation, circumscribed, salient or not, of 1.0 to 3.0 cm. Pathological process located in the epidermis-dermis and/or subcutaneous tissue. Greater than 3.0 cm would be called nodular plaque. |
terminology thus becomes rather complicated, taking into account the existence of the two models described above, the Essentialist and the Nominalist, both used in many countries.3,8,18

Through these initial models, renowned authors of more recent books place their modifications and individual preferences in textbooks, resulting in slight discrepancies in the description of some elementary lesions, which makes teaching difficult for professionals in the field of Dermatology, and hinders the learning process of those in training.

It can be concluded from this review that the description reported by many authors must be considered, and that such differences related to the dermatological nomenclature must be accepted, it being up to the teaching institution and/or professional in the field to use the reference of their choice. In addition, the students and residents must be informed about the didactic preference and for what reasons. Moreover, the institution should call their attention to the existence of these possible differences within the many reference textbooks on cutaneous semiology, and even among the professionals of the same teaching institution, in an attempt to avoid conflicts and doubts in the description of elementary lesions.

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