

Cystic and Nodulocystic Acne: Clarifying a Misconception

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Acne terminology has become confusing, especially terminology on nodulocystic acne. Most lesions that are labeled as nodulocystic acne are inflammatory granulomas and lack a true epithelial lining; therefore, the correct term should be *inflammatory or nodular acne*, not *cystic or nodulocystic acne*.

Acne vulgaris has been the most commonly seen disease in dermatology practice.¹⁻⁴ In 1979, on reviewing 3000 first consultations at our private office, acne vulgaris represented 26.6% of cases, followed by seborrheic dermatitis (6.3%), melasma (6%), contact dermatitis (5.2%), and atopic dermatitis (5%). The rest of the cases were divided among other dermatologic conditions such as psoriasis, viral warts, tinea infections, and skin cancer.¹ Anecdotal evidence of other colleagues also confirms the high frequency of acne vulgaris. Analyzing the prevalence of the 10 most common dermatologic diseases since 2005 shows that acne vulgaris represents 108 cases per thousand (5.89 million cases), followed by common warts and herpes at 81 cases per thousand.²

Acne vulgaris has been classified as inflammatory, in which the elementary lesion is a nodule or other inflammatory lesion, and noninflammatory, in which the elementary lesion is a comedone.³ Inflammatory acne vulgaris tends to leave scars of variable intensity, but noninflammatory acne vulgaris does not.³⁻⁵ Recent literature tends to classify more severe forms of inflammatory acne vulgaris as cystic or nodulocystic.⁶⁻⁹ Because much of this literature is studied by residents or newly practicing dermatologists, the incorrect use of these terms may generate confusion.

Acne terminology, even the cautious use of terminology to describe so-called elementary lesions, has become

somewhat confusing. Solid concepts enable dermatologists to better understand and describe lesions and also promote a clear standardization of terms.

MATERIALS AND METHODS

Data were obtained from 3 sources: recent books and journal articles on acne classification, searched for in a private library; common medical dictionaries containing terminology on elementary lesions; and a simple survey sent to 5 dermatopathologists asking their concept of the terms *cyst* and *nodule*. Recipients of the survey were: A. Bernard Ackerman, MD; Ronald Barr, MD; José Ollague, MD; Jorge Sánchez, MD; and Omar Sangüeza, MD.

The data were revised, tabulated, evaluated, and compared with our own data to reach a conclusion.

COMMENT

Several journal articles we reviewed made reference to severe inflammatory acne vulgaris as nodulocystic acne.^{1,2,6-9}

Four out of 6 textbooks we reviewed used the term *nodulocystic acne* but did not explain the reason for such terminology¹⁰⁻¹³; two explained that cysts really do not exist in acne.^{4,5} Ioffrade⁵ mentioned that “cyst-like follicular dilatation with deep rupture leads to neutrophilic and granulomatous inflammation throughout the dermis.” Cunliffe¹⁴ accepted that “cysts are fortunately uncommon in acne”; 2 figures from this source show nodules and no cysts.

According to Lever and Schaumburg-Lever,¹³ in acne conglobata there is “an extensive infiltrate composed of neutrophils, lymphoid cells and histiocytes. Abscess formation results and leads to the destruction of the pilosebaceous structures. In response to this destruction,

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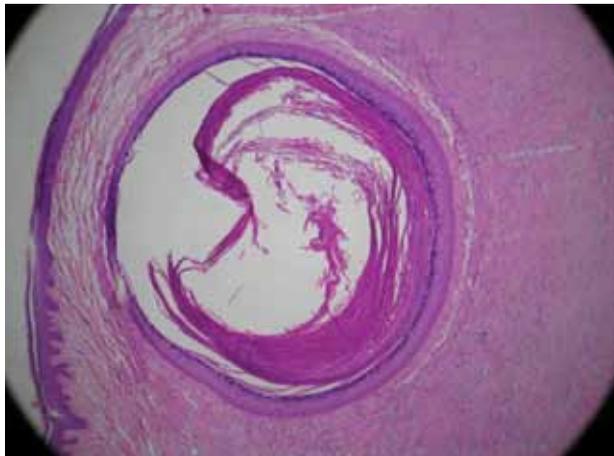


Figure 1. The epithelial lining is the hallmark of a true cyst (H&E, original magnification $\times 10$).

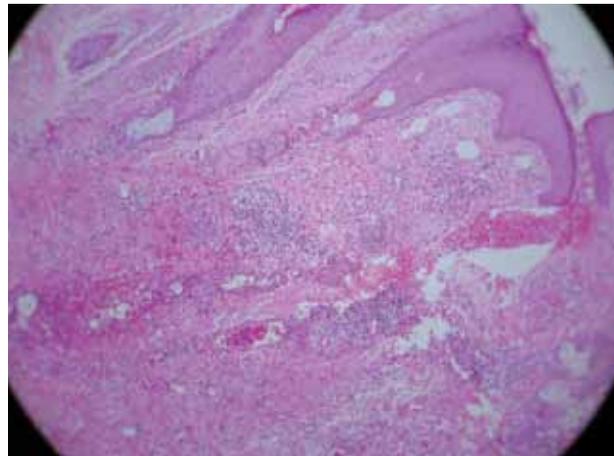


Figure 2. A nodule is an inflammatory granuloma. It varies from mild, as shown here, to severe and destructive (H&E, original magnification $\times 10$).

granulation tissue infiltrates the area; after healing, extensive fibrosis may be seen.” The authors did not mention a wall composed of true epidermis lining a cavity; however, they recognized that because the abscesses extended deeper into the subcutaneous tissue, draining sinus tracts developed that were lined with epidermis. It is evident that the lesions represented sinuses, not true cysts.

How can we understand what constitutes a true cyst? In our opinion, a cyst is a bag or cavity surrounded by a capsule that contains a solid, semisolid, or liquid material. Keratin is an example of solid material; sebum, a semisolid material; and blood or sweat gland secretion, a liquid material (Figure 1). Medical dictionaries support this opinion.¹⁵⁻¹⁷ However, the surveyed dermatopathologists agreed that a true cyst must have an epithelial lining (A.B. Ackerman, R. Barr, J. Ollague, et al, written communication, 2007). This opinion is shared by Plewig and Kligman,¹⁸ who wrote that “[n]odules and abscesses, typical of acne conglobata are practically always called cysts. They are however not cysts and lack epithelial lining.” Accepting this point of view, true cysts are seen in very few cases of acne; in fact, only in these few cases should we use the term *cystic acne*. In the vast majority of cases without true cysts, we should use the term *inflammatory acne* only. The same opinion is shared by Thiboutot and Strauss,¹² who wrote that “some of the large nodules were previously called ‘cysts’ and the term nodulocystic has been used to describe severe case[s] of inflammatory acne. True cysts are rarely found in acne, and the term should be abandoned and the term severe nodular acne used instead.”

This leads to another question, probably somewhat more controversial: what is a nodule? In our opinion, a nodule is an inflammatory lesion consisting of histiocytes

or their derivatives—that is, epithelioid or giant cells. Also, within a nodule are new capillaries with supporting fibroblasts, all associated with destruction of preexisting tissue (Figure 2). This concept is similar to that of Pinkus and Mehregan,¹⁹ who state that a nodule must be understood to be microscopically a granuloma, a lesion that always causes scarring, even though sometimes the scarring is imperceptible. In this context, the important considerations are not only the size or depth of the lesion,¹⁹⁻²¹ as defended by Gay Prieto²² and Rapini,²³ but also the type of cells that constitute the lesion and the lesion’s biological behavior. In a nodule, an epithelial lining does not exist, making it completely different from a cyst. Kligman and Plewig⁴ made reference to nodules as the “hallmark of serious acne.”

A granuloma is generally defined as a form of chronic inflammatory response characterized by nodular, well-delimited collections of mononuclear cells, often with multinucleated giant cells and epithelioid cells besides lymphocytes.²⁴

Activated macrophages possess increased phagolysosomes and endocytic vesicles; also, they secrete large quantities of neutral proteinases, including plasminogen activator, elastase, and collagenase. However, epithelioid cells are poorly phagocytic but are active in pinocytosis and in enzyme secretion, suggesting that they promote digestion of extracellular material.²⁴

Well known to acne clinicians is granuloma regression, with lysis of granulomatous tissue that leaves a scar or fluctuant, soft, liquid-material nodule. This is not a true cyst but, rather, a coagulation necrosis of tissue.

Finally, reaction to *Propionibacterium acnes* intensifies the inflammatory response in acne vulgaris lesions²⁵ (Figure 3).



Figure 3. These are nodules—not cysts—in a severe form of inflammatory acne vulgaris.

In short, it is a nodule, not a cyst, that we observe in most cases of inflammatory acne vulgaris.

SUMMARY

Acne terminology has become somewhat confusing. Assuming that when we refer to a cyst a true epithelial lining does exist, we must realize that most cases of so-called nodulocystic acne do not have true cysts. In fact, inflammatory lesions represent a regressional episode of a granulomatous reaction in acne. Therefore, the terms *cystic acne* and *nodulocystic acne* should be abandoned. Instead, these lesions should be referred to as *inflammatory acne* or *nodular acne*.

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