

Can Skin Biopsy Diagnosis Be More Specific?

Clinical dermatologists frequently complain that the biopsy reports they received are often not very helpful: the diagnosis rendered by the pathologist is either purely morphological, added with words like "nonspecific", or else couched in conditional qualitative terms such as "suspicious", "suggestive", or "likely". Being a clinical science largely dependent on human judgment, pathological diagnoses are understandably embodied with a certain element of subjectivity. However, while the argument is well taken, how can a clinician tell a patient what the course of his "nonspecific" rash is or initiate chemotherapy on a diagnosis of "probable" lymphoma?

There is an intrinsic reason for the ambiguity: the number of ways tissue can respond to different insults is actually limited; a diversity of causes may produce an identical reaction pattern. This is true not only for histological changes, but also for clinical appearances that dermatologists depend upon for diagnosis. This is an inherent limitation for all diagnostic techniques based on morphology, and therefore such techniques, skin biopsy included, can never achieve perfect specificity.

Furthermore, dermatopathology, like all other clinical disciplines, is an imperfect science. It is more an art relying on the integration of colour patterns on glass slides, tissue textures, and relationships of shapes to generate a diagnostic impression best consistent with the data. This essentially is a cognitive process requiring a complex interpretation of all available information, including medical history, physical findings, and other laboratory tests. Without a good knowledge of these other information, the predictive value of histological assessment would be much hampered.

Lack of communication is more often the main problem. One should understand that clinical dermatology and dermatopathology are two different domains of knowledge. Features assessed, terminology used and disease classification employed are all different. This is not a matter of which one is better or truer, they are just the best for their own interests. Like the Eskimos may have over 40 ways of describing the

different states of water, many Southern Chinese cannot even tell the difference between snow and ice (for example, "snow-chest" for refrigerator and "snow-bar" for ice-bar). Yet the large number of ways to describe the different forms of cooking in Cantonese is really amazing and hard to be matched by any other language. What we call things and where we draw the line between one class of things and another depend upon the interests we have and the purpose of classification. Different domains will evolve and develop their own terminology suitable for their own purposes. So what to a pathologist the most important observations may well be just meaningless microscopic verbiage to his or her clinical counterpart.

The fact that the two disciplines belong to different domains actually could be advantageous, for, statistically, the more independent the two tests are, the better is the combined diagnostic value. The way to combine is the key to the maximum utility. For this, somebody, whether one is a dermatologist or a pathologist, must be able to synthesize all available information. To achieve more specific diagnosis, the different parties need to master some basic knowledge of the other domain. If this can be done, we will certainly see less "nonspecific" diagnoses. Or when the significance of the microscopic findings can be properly deciphered, even a "nonspecific" biopsy report may prove to be useful to clinicians. The problem is, however, most general pathologists have little knowledge in clinical dermatology. The reverse, unfortunately, is often true.

Today, as we move into the new millennium, the discipline of dermatopathology is significantly enhanced by the techniques of electron microscopy, immunohistochemistry, and in-situ hybridization, and certainly will be further empowered by new molecular techniques. However, only when the gap between clinical dermatology and dermatopathology can be effectively bridged will a bigger impact of skin biopsy on patient management be truly felt.

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