

# A Picture Says a Thousand Words. The Importance of Digital Clinical Photography in Establishing Histopathological Diagnosis of Cutaneous Disorders: A Dermatopathologist's Perspective

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## Keywords

clinical image, telemedicine, dermatology, dermatopathology

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Commenting on a previously published paper in JPCCH:

*Marin-Gomez FX, Vidal-Alaball J, Poch PR, Sariola CJ, Ferrer RT, Peña JM. Diagnosis of Skin Lesions Using Photographs Taken With a Mobile Phone: An Online Survey of Primary Care Physicians. J Prim Care Community Health. 2020;11:2150132720937831. doi:10.1177/2150132720937831*

In an interesting study, Marin-Gomez et al.<sup>1</sup> examined the utility of digital clinical photography in facilitating general practitioners and primary care teams diagnose and manage dermatological conditions. In the current COVID-19 pandemic where social distancing measures preclude the traditional face-to-face consultation delivery model, the topic discussed by the authors is more pertinent than ever before. The use of digital images are not only helpful for general practitioners, they can be effectively used down the line by other physicians involved in the patient care. These images can be invaluable to dermatopathologists, who are at the forefront of establishing the final histopathological diagnosis. The dermatopathologists usually do not examine the patients in-person and sometimes have to rely on limited or incomplete clinical information on pathology requisition sheets. As skin biopsies are more frequently performed in complicated critical dermatoses and high risk cutaneous malignancies, the importance of access to clinical images becomes even more vital for proper correlation.

The significant value of clinicopathological correlation in establishing accurate histopathological diagnoses of dermatological conditions is unanimously recognized. Review of clinical images delivers an advantage in providing a more precise interpretation of microscopic evaluation.<sup>2</sup> Inflammatory

dermatoses display diverse histopathological patterns, with considerable overlap in microscopic features. The histopathological analysis often narrows down the differential to two, or more, entities, with clinical correlation further steering to the most compatible diagnosis according to the clinical setting. Dermatopathology is replete with examples where similar microscopic characteristics are shared among two, or more, conditions which otherwise have no etiological relationship. For instance, lichen planus and lichen planus-like keratosis can exhibit comparable features under the microscope but clinically and etiologically are completely distinct. Lichen planus is a chronic inflammatory dermatosis involving skin (and sometimes mucosal sites), presenting with multiple itchy flat-topped papules and plaques. On the other hand, lichen planus-like keratosis is a solitary macule or plaque representing an involuting benign keratosis. Clinical images can effectively resolve many such dilemmas and quandaries, assisting in achieving more precise and personalized histopathological interpretations.

The effectiveness of clinical images is not just limited to inflammatory dermatoses; their significance is also emphasized in various cutaneous malignancies. Clinicopathological correlation using clinical images has been shown to influence

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management in patients with pigmented skin lesions.<sup>3</sup> Reviewing the clinical image, a dermatopathologist may evaluate for clinical ABCDEs of melanoma, observe a small area of possible ulceration, regression or a minute satellite metastasis which may be more noticeable on the image. Such observations can prompt a more thorough pathological analysis possibly employing extra deeper levels in the tissue-block, procuring additional sections of a representatively sampled large lesion or requesting ancillary studies. Misdiagnoses of melanoma and microstaging inaccuracies are more prevalent in lesions that have been assessed with smaller partial biopsies (punch or shave) of larger lesions.<sup>4</sup> As the size of the lesion is not always provided on pathology requisition sheets, the dermatopathologist is sometimes left in the dark regarding the true extent of the lesion. In this circumstance, a clinical image can influence in disclosing any sampling issue and avert a potential diagnostic error.

The advantage of clinical images holds true for other cutaneous malignancies as well. In particular, clinical images can be notably beneficial in making a confident diagnosis of a cutaneous T-cell lymphoma like mycosis fungoides.<sup>5</sup> The diagnosis of this condition is challenging both clinically and histopathologically. Sometimes confident diagnosis of mycosis fungoides cannot be rendered on a single skin biopsy and multiple biopsies are required, which can delay the diagnosis. Along with supporting final histopathological diagnosis, the images can assist in improving comments and recommendations. If the image is suggestive of mycosis fungoides, depending on the situation, the dermatopathologist may recommend re-biopsies from more representative/untreated areas or request molecular studies (i.e., T-cell gene rearrangement studies). These recommendations and requests made after clinicopathological correlation may prevent diagnostic delay by early recognition of challenging cases.

Sharing these images with health care providers from different specialities can be a challenge as a dependable and secure platform is ideally required. If available, an efficient integrated network of electronic health record information system can be ideal for telemedicine and digital healthcare. In our province of Alberta, Connect Care, a customized version of Epic Care (Epic Inc., WI, USA), was launched in November 2019.<sup>6</sup> This information system has the facility to securely keep images and media which can be accessed by the physicians. Since the roll out in 2019, we have noticed a trend of general practitioners, dermatologists and residents in-training sharing digital clinical images on this system. The images that once just sat on mobile devices or were inconsistently shared are now securely kept on an accessible health care network. We are already beginning to sense a general improvement and added confidence in our dermatopathology opinions due to this constructive trend. The benefits are multidimensional

as the images also afford an excellent educational resource for our residents in-training.

In sum, as highlighted by Marin-Gomez et al, clinical images of dermatological conditions can be a valuable resource. These images are not only advantageous for general practitioners; they can be effectually utilized subsequently by other subspecialty physicians, such as dermatopathologists. An expansion of the current study model which incorporates the impact on final histopathological diagnosis can be a worthwhile endeavor. If these images are consistently and securely shared, primary care teams can help their colleagues in laboratory medicine qualitatively improve their histopathological opinions. A good clinical image of a dermatological condition can help a dermatopathologist make a more confident diagnosis, improve microstaging of malignancies, help make decisions regarding additional ancillary studies and even prevent a major diagnostic error.

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