Pears and Updates in Dermatopathology for the General Surgical Pathologist

Experts Weigh In on What You Need to Know

Sara C. Shalin, MD, PhD; Jerad M. Gardner, MD; Jennifer R. Kaley, MD

The practice of dermatopathology, like every other subspecialty of pathology, is a vast science and ever-evolving art. New advances in molecular pathology continue to challenge our previous understanding and classification schemes of melanocytic and hematolymphoid neoplasms, for example, and emerging tools in immunohistochemistry have become available to aid in accurate diagnosis of various neoplasms. In truth, however, the majority of dermatopathology cases do not require advanced ancillary testing to achieve the correct diagnosis. Only a small minority of skin biopsy specimens land on the microscope as consultations at major academic centers. The majority of cases are diagnosed either by nonacademic dermatopathologists or by general surgical pathologists in community practice.

This 2-part special section on dermatopathology, which will be published in 2 separate issues, was designed to provide general surgical pathologists with a practical overview of some of these aforementioned latest advances in the field as well as a guide to handling commonly encountered, but frequently problematic, skin biopsies. A common theme you will see in these articles is that clinical correlation is of great importance in dermatopathology. This issue will discuss some pertinent clinical correlates, including tips on recognizing emergent or urgent cases—when in doubt, we always recommend expedient communication with the dermatologist! We asked expert dermatopathologists and dermatologists from across the United States and abroad to contribute articles on topics about which they are passionate, and that they believe are most useful and practical for general pathologists.

In this issue (Part I), Nathan Harvey and Benjamin Wood tackle the subject of melanocytic lesions, a frequent source of consternation for pathologists. Using clues gleaned from provided clinical information, low-power assessment, and high-power examination, the authors serve up a practical guide for a comprehensive approach to melanocytic lesions, focusing on common pitfalls that potentially result in both overdiagnosis and underdiagnosis of melanoma. Frequently problematic entities such as recurrent nevi, melanocytic lesions in the context of pregnancy or specific anatomic sites, and desmoplastic and nevoid variants of melanoma are discussed in detail. Expanding on the subject of melanocytic pathology, Jonathan Lee and Christine Lian review the current landscape of molecular testing in melanocytic neoplasia, covering molecular tests that are available to pathologists to assist in the diagnosis of melanocytic lesions (including fluorescent in situ hybridization, comparative genome hybridization, and gene expression profiling) as well as molecular tests that may be ordered by clinicians as a prognostic aid in patients already diagnosed with melanoma. The advantages and drawbacks of currently available ancillary molecular tests are explored, which should help guide readers in the ordering of these tests or advising clinicians regarding the utility of such testing. The authors also review a handful of immunohistochemical stains that are moving from the research setting to the practice arena that show promise in the evaluation of challenging melanocytic tumors.

May Chan moves the target from complex melanocytic lesions to complex squamoproliferative lesions in her article reviewing the current terminologies and diagnostic criteria for verruciform and condyloma-like squamoproliferative lesions of the anogenital region. Her article concisely describes human papillomavirus (HPV)–driven neoplasia of the anogenital track, important neoplastic mimickers, uncommon but benign mimickers, and the utility of ancillary testing for HPV. Finally, a review of adnexal neoplasms, both benign and malignant, rounds out Part I of our special section. Ronald Rapini’s comment on the classification of hair follicle tumors is often quoted during dermatopathology sign-out at University of Arkansas for Medical Sciences (Little Rock): “Classifying snowflakes is easier.” Indeed, Edward Fulton, Jennifer Kaley, and Jerad Gardner tackle this broad subject and provide a comprehensive algorithmic approach to diagnosing neoplasms of follicular, sebaceous, or sweat gland origin. Accompanied by numerous annotated images, this article will be a useful reference to understanding the diagnostic nuances among these unusual tumors.
Part II comprises 3 additional articles and will run in the August 2019 issue. Mallory Abate, Laura Battle, Ashley Emerson, Jerad Gardner, and Sara Shalin provide a thorough review on dermatologic emergencies and commonly encountered inpatient dermatology biopsies. Written from the perspective of a dermatologist, this article provides valuable insight into clinical differential diagnoses (with numerous clinical images) and the dermatologist’s expectation of information to be gleaned by biopsy. Designed to be a practical resource for general pathologists without immediate access to dermatopathology consultation, the article covers serious dermatologic diseases such as angioinvasive fungal infections, blistering diseases, graft-versus-host disease, calciphylaxis, and neutrophilic dermatoses. Next, Jennifer Ko and Gabriel Habermehl present a rigorous review of metastases to the skin. Written to provide an effective and expeditious guide to the workup of cutaneous metastasis of unknown primary, the article also explores the epidemiology, varied clinical presentations, and wide spectrum of histologic appearances of cutaneous metastases. The importance of ancillary immunohistochemistry is emphasized, with a focus on potential pitfalls and mimickers in the diagnosis of neoplasms metastatic to skin. Lastly, Alejandro Gru, Chauncey McHargue, and Andrea Salavaggione comprehensively discuss hematolymphoid infiltrates in the skin, covering T-cell neoplasia, B-cell neoplasia, and almost everything benign and malignant in between. Introducing a concept of “ABCDE” pattern of evaluation, the authors propose a systematic approach to incorporate clinical features and histologic appearances when evaluating a lymphoid infiltrate in the skin, accompanied by numerous useful clinical and histologic images. The added value of immunohistochemical staining and molecular testing is also emphasized.

The aim of our special section is to provide a practical approach in evaluating commonly encountered yet potentially challenging entities in dermatopathology, to update general pathologists on some of the latest advances in dermatopathology, and to offer guidance in a methodical approach to working up unexpected or emergent cases. We hope that the readers of Archives of Pathology & Laboratory Medicine will find this dermatopathology special section to be a valuable resource that is helpful and applicable to approaching skin biopsies of all types in everyday practice.

Reference

Sara C. Shalin, MD, PhD

Sara C. Shalin, MD, PhD, is an associate professor in the departments of pathology and dermatology at University of Arkansas for Medical Sciences (UAMS) in Little Rock, Arkansas. In addition to practicing dermatopathology, she serves as the director of anatomic pathology operations, the director of the UAMS MD/PhD program, and the associate dermatopathology fellowship program director. Her interests include the biology of melanocytic lesions, the inflammatory microenvironment of cutaneous tumors, patient safety and quality in the anatomic pathology laboratory, and physician scientist training. She currently serves on the Acceptable Use Criteria Committee and Fellowship Match Subcommittee of the American Society of Dermatopathology. She has participated in and led College of American Pathologists inspections and holds a certificate of recognition in laboratory medical direction from the College of American Pathologists. Dr Shalin received her MD and PhD in neuroscience from Baylor College of Medicine in Houston, Texas. She completed her pathology residency (anatomic and clinical pathology) at Baylor College of Medicine, serving as chief resident her fourth year, and completed her fellowship in dermatopathology in Boston, Massachusetts, at the Harvard-affiliated hospitals.
Jennifer R. Kaley, MD

Jennifer R. Kaley, MD, is a board-certified anatomic and clinical pathologist and dermatopathologist. She received her bachelor’s degree in biological engineering from the University of Arkansas in Fayetteville, and continued her studies at the University of Arkansas in Little Rock, where she earned her medical degree, graduating with Alpha Omega Alpha honors. She completed residency in anatomic and clinical pathology at the University of Arkansas for Medical Sciences (UAMS) in Little Rock, followed by a dermatopathology fellowship at the University of Virginia in Charlottesville. After completion of fellowship, she returned to UAMS to pursue academic practice. At the time of conception and compilation of this special section, Dr Kaley was an assistant professor of pathology and dermatology at UAMS, where she served as the director of the dermatopathology rotation for pathology residents from 2017 to 2018 and was actively involved in resident and fellow teaching and mentorship. She has published multiple scientific papers concerning both benign and malignant skin conditions in major medical journals, as well as authored several book chapters in pathology textbooks. She has presented her work at national meetings, including the American Society of Dermatopathology, the United States and Canadian Academy of Pathology, the International Society of Dermatopathology, and the College of American Pathologists. Her special interests include melanocytic neoplasms, cutaneous lymphoproliferative disorders, and infectious diseases. Dr Kaley currently resides in Bentonville, Arkansas, and practices at Hull Dermatology, PA.

Jerad M. Gardner, MD

Jerad M. Gardner, MD, is an associate professor of pathology and dermatology at the University of Arkansas for Medical Sciences (UAMS) in Little Rock, where he is also the dermatopathology fellowship program director and the musculoskeletal/skin module codirector for the College of Medicine. He obtained his MD from Tulane University in New Orleans, Louisiana, completed residency in anatomic and clinical pathology at Houston Methodist Hospital (Houston, Texas), and completed fellowships in soft tissue pathology and dermatopathology at Emory University in Atlanta, Georgia. Dr Gardner has more than 90 peer-reviewed publications as well as multiple book chapters. He is also coauthor of the book *Survival Guide to Soft Tissue Pathology* and author of the in-press book *Survival Guide to Dermatopathology*. He is particularly interested in cutaneous soft tissue tumors, skin adnexal tumors, medical education, and the professional use of Twitter, Facebook, YouTube, and other social media for pathologists. He has received multiple awards, including the Resident Advocate Award (2015) and the Outstanding Communicator Award (2018) from the College of American Pathologists and the UAMS Chancellor’s Teaching Award for Teaching Excellence (2018). He was also named as a top 5 member of the 2017 “40 Under Forty” by the American Society of Clinical Pathology. Dr Gardner is chair of the Social Media Subcommittee and also member at large on the Board of Directors for the American Society of Dermatopathology. He is a deputy editor-in-chief of *Archives of Pathology & Laboratory Medicine*. 