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If you have suggestions or topics or content for Clinical Pearls, contact Dean Monti at **dmonti@aad.org**

Clinical Pearls

Clinical Pearls help prepare residents for the future by providing them with top tips from experts about what they should know about a specific subject area by the time they complete their residency.

Starting out in dermatopathology

By Ata Moshiri, MD, MPH

Pearl #1: Develop a systematic approach to evaluating slides that you go through the same way for every case. Dr. Atul Gawande, a surgeon, writer, and public health researcher, emphasizes the importance of routines in avoiding mistakes for airline pilots and surgeons in *The Checklist Manifesto*. Similarly, dermatopathologists have little room for error, since making even a single misdiagnosis can lead to real harm. I recommend utilizing a "top-down" approach, starting from the stratum corneum and working systematically to the base of the tissue. This may seem tedious and unnecessary as you become more proficient but building good habits early in your practice is critical to long term success, whether you are a dermatologist occasionally reviewing your own biopsies or a dermatopathologist signing out thousands of cases per year.

Pearl #2: Don't forget to look at all of the tissue on the slides! "BCC — next case." Wrong! You'd be amazed at the number of times the key to the diagnosis is a relatively subtle finding seen only on one section of one cut on one slide. Sometimes, you'll discover multiple diagnoses where the clinician may have been looking for only one. Taking care to look at all the tissue, you'll find yourself making important finds such as a Merkel cell carcinoma lurking amidst islands of that nodular basal cell you were ready to send to Mohs, or a lentigo maligna hiding at the edges of that lichenoid keratosis, or a pauciorganismal infection underlying pseudoepitheliomatous hyperplasia that's been treated as a stubborn squamous cell carcinoma.

Pearl #3: Low power is for high power minds (and vice versa)! There is a huge temptation for beginners to jump to high power very quickly as they struggle to identify cell types and other features that might be hard to appreciate at scanning magnification, which often gets glossed over. This is a mistake! Do not underestimate the tremendous amount of information that can be gleaned from "bomber view," as a mentor of mine likes to call it. What type of specimen is it — shave, punch or excision? Where is the action — epidermis, dermis, subcutis, or some combination thereof? Is it a rash or a tumor? If it's a tumor, is it benign or malignant? All of these questions should be answered at low power, a differential diagnosis formed, and only then should higher power views modify that differential accordingly. Going to high power too quickly is a recipe for losing the forest for the trees.

Pearl #4: Use mnemonics. I'm not normally a "mnemonics kind of guy" — however as with clinical dermatology, some rashes and tumors can look pretty similar under the microscope and you'll need some way to remember all the things you should be thinking about. Have a malignant spindle cell tumor **SLAM**ming against the epidermis? It could be a **S**quamous cell carcinoma, **L**eiomyosarcoma (now known as atypical smooth muscle neoplasm, but then we'd lose our L and that would be inconvenient), **A**typical fibroxanthoma, or **M**elanoma. Don't see much going on in the specimen? Do you know **I VACUUM DOG PUS**? A disgusting visual to be sure, but it gets the point across that you need to consider **I**chthyosis, **V**itiligo, **A**rgyria, **C**andida, **U**rticaria (or Urticaria pigmentosa), **M**acular amyloid, **D**ermatophytes, **O**nchocerciasis, **G**old (chrysiasis), **P**soriasis (the guttate variant), **U**lerythema ophyrogenes, and **S**cleredema. These examples and many others are summarized in the latest edition of Dr. Dirk Elston's excellent review book *Dermatopathology* or can be found online via Google searches.

Pearl #5: Get comfortable with both glass and digital slides. Not only is the dermatology board examination moving towards using an exclusively digital slide format, but with the advent of artificial intelligence and machine learning algorithms in clinical diagnostics, pathology labs are pushing to digitize slides to take advantage of these powerful tools in their workflow. As such, now more than ever, trainees need to become comfortable interpreting digital slides in addition to old-fashioned glass. One of my favorite tools for this purpose is PathPresenter (**www.pathpresenter.net**), a free digital slide repository with a nice interface similar to that used on the board exam, great examples of both common and rare diagnoses, as well as the ability to upload your own cases for teaching. DR