

Pathology Gross Photography

The Beginning of Digital Pathology



B. Alan Rampy, DO, PhD^a, Eric F. Glassy, MD^{b,*}

KEYWORDS

- Gross photography • Digital pathology • Electronic medical record
- Diagnostic report • Anatomic pathology

OVERVIEW: SETTING THE STAGE

Today, digital pathology equates to whole-slide imaging (WSI). But before high-priced scanners and computer-assisted diagnoses, there were static images of microscopic slides and gross surgical pathology specimens. This is where digital pathology started. Photomicrography has given way to WSI but capturing and documenting gross surgical pathology specimens is just as important and, the authors argue, a key component of the pathology report and the electronic medical record.

AP is a visual discipline and photographic documentation of clinical specimens is an essential element of the effective practice of pathology. Because photography is not a fundamental subject of medical training, pathology residents most often have little experience with photography as it applies to the AP setting. Moreover, whereas there seems to be broad consensus that basic digital gross pathology competency should be considered a requisite component of pathology education¹ and is accordingly included in the list of training objectives and residency handbooks of most major residency programs, available learning resources are scant. Of the publications with regard to gross pathology photography, most address the logistics of image acquisition, transfer, and storage or the relative benefits of select hardware/software advances.^{2–6} As such, only a few articles serve as essential guides to understanding the importance of hands-on strategies and techniques for quality gross photography.^{7–10} The aim of this article is to describe informally, through a variety of examples, many of the important concepts that underlie quality gross pathology photography.

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^a Department of Pathology, University of Texas Medical Branch, 301 University Boulevard, Mail Route 0747, Galveston, TX 77555-0747, USA; ^b Affiliated Pathologists Medical Group, 19951 Mariner Avenue #155, Torrance, CA 90503, USA

* Corresponding author.

E-mail address: efglassyemd@affiliatedpath.com

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GROSS PHOTOS IN PRACTICE

Quality gross specimen photographs are a fundamental element of AP practice. Such images not only are part of patient medical records but also are often reviewed at conferences, used as educational material, and integrated into professional publications. The value of thoughtful, complete, and first-rate image support cannot be overstated. Photos obtained by a prosector assigned to a particular case are often the only permanent record of specimen features and associated anatomic landmarks, prior to histopathologic sampling. As pathology practices merge and cases are handed off to others at sign-out, the need for visual documentation of complicated surgical specimens becomes even more critical. A related benefit of gross photography may be realized at microscopic examination, whereupon photographic review may be used to map sites of histologic sections. In addition to multidisciplinary review of digital pathology WSI at tumor board conferences in select institutions, it is expected that relevant gross pathology photographs will be available for assessment as well. Pathology practice is also part of the broad realm of patient-centered care, health information sharing, and electronic medical records, and, with ever increasing frequency, pathology gross photography is considered for integration into AP laboratory information systems, electronic medical records, and pathology diagnostic reports.¹¹ This guide for gross pathology imaging would not be complete without mention of the critical importance of associated specimen/patient information. Just as many experienced pathologists have desk drawers full of 35-mm photographic slides identified only by a specimen accession number, quality digital gross images are only of value if they are stored and archived along with appropriate metadata. Given these considerations, along with thoughtful attention to optimized patient care, clinical concerns, and associated educational opportunities, any pathology laboratory may establish a standard of excellence for gross specimen photography.

THE DECISION TO SHOOT

Not every gross specimen needs to be photographed. A good guideline to determine whether a specimen should be photographed is simple—all grossly evident pathology should be documented. Following this basic rule, if and when a clinical request for gross presentation of a particular specimen is received, the relevant pathology images may be reliably and readily provided. But that is not quite all. The photos should be taken to best show any and all associated disease processes, and the photos should be aimed to address all relevant clinical questions and concerns. Additionally, all grossly absent yet expected pathologic features should be documented in the photo records. Moreover, when the issue may be of particular clinical importance, photos should document the appearance of the specimen as it was received in pathology, before any further manipulations have taken place. For clarity, it is generally a good idea to orient a series of photographs of the same specimen in the same way. Consider photographing specimens that have sutures or other surgical markings in a manner that corresponds to the description, such as “short suture superior” at the top of the photo. Each set of images should tell a story, so that the final composite leads to a conclusion.

Because gross-only specimens, by definition, have no tissue submitted for histology, and hence no associated histologic diagnosis, complete quality photo documentation is imperative. This means that gross-only specimens should be photographed from all perspectives and all clinically relevant details should be included. Explanted medical devices, such as breast implants, intrauterine devices, and catheters, are a special subset of gross-only specimens and should be treated as such. These devices

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