# Publication Images: The Good, the Bad and the Impossible

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## Abstract

Photomicrographic images that are submitted to *Toxicologic Pathology* for the purpose of documenting scientific findings range in quality from the good and the bad, to the impossible. Some of the most common problems with manuscripts submitted to *Toxicologic Pathology* are uneven illumination, out of focus photomicrographs, overexposed immunohistochemistry and inappropriate labeling. Examples of various common errors in submissions will be presented along with possible solutions achieved by the utilization of an image-processing program, such as Photoshop®. Some worst-case scenarios of "impossible" images will also be examined.

## Kohler Illumination

Aligns the optics in a microscope to provide even illumination throughout the view field, cutting out reflections and glare on the specimen by adjusting the sub stage condenser, the field diaphragm, and the condenser centering screws.

## Examples of The Possible and The Impossible

The following images are representative of some of the photomicrographs that have been submitted to *Toxicologic Pathology* over the years.

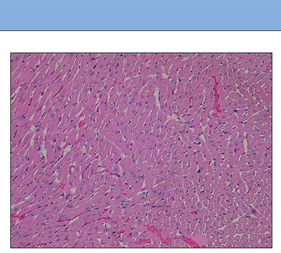

**Figure 1A** represents an image where the condenser was not properly focused.

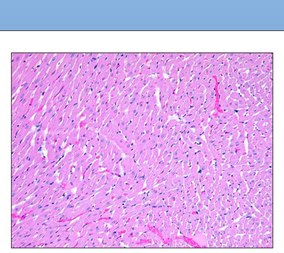

**Figure 1B** represents an image where the condenser has been optimally adjusted.

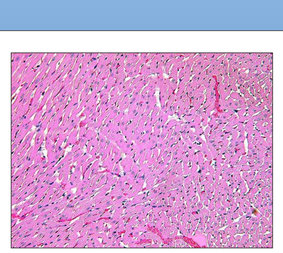

**Figure 1C** represents image 1A that has been adjusted in Photoshop® by balancing the illumination. **This image is acceptable for submission to *Toxicologic Pathology.***

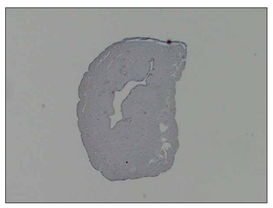

**Figure 2A** represents an image where the specimen was not properly illuminated.

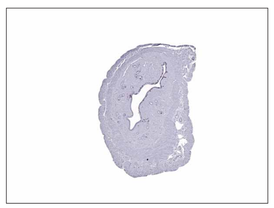

**Figure 2B** represents an image where the light source has been optimally adjusted.

**Figure 2C** represents image 2A that has been adjusted in Photoshop® by increasing the illumination. **This image is NOT acceptable for submission to *Toxicologic Pathology.***

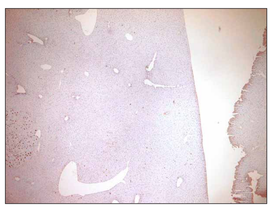

**Figure 3A** represents an image where the field diaphragm has been closed beyond the visual field.

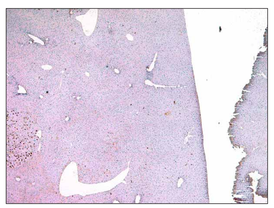

**Figure 3B** represents an image where the field diaphragm has been properly adjusted to eliminate shading.

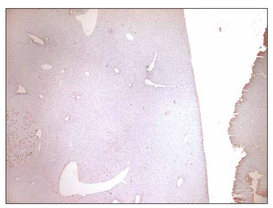

**Figure 3C** represents image 3A that has been adjusted in Photoshop® by increasing the illumination. **This image is NOT acceptable for submission to *Toxicologic Pathology.***

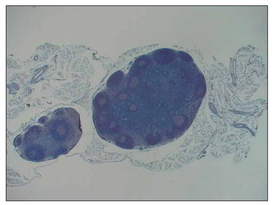

**Figure 4A** represents an image where the visual field was not properly white balanced before capturing the image.

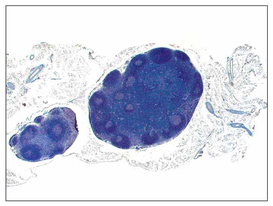

**Figure 4B** represents an image where white balance has been properly calibrated.

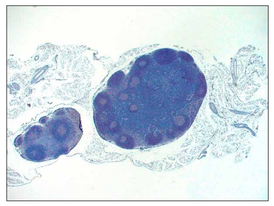

**Figure 4C** represents image 4A that has been adjusted by resetting the white point in Levels using Photoshop®. **This image is NOT acceptable for submission to *Toxicologic Pathology.***

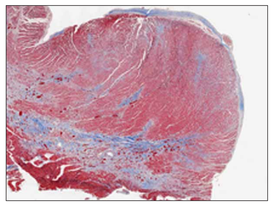

**Figure 5A** represents an image captured at the digital camera's lowest resolution setting (72 dpi). **This image is NOT acceptable for submission to *Toxicologic Pathology.***

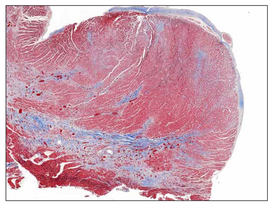

**Figure 5B** represents an image captured at the digital camera's medium resolution setting (200 dpi). **This image is NOT acceptable for submission to *Toxicologic Pathology.***

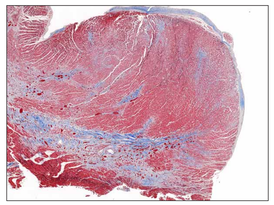

**Figure 5C** represents an image captured at the digital camera's highest resolution setting (300 dpi). **This image is acceptable for submission to *Toxicologic Pathology.***

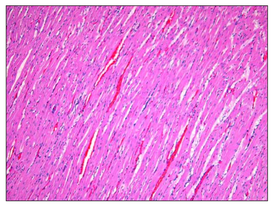

**Figure 6A** represents an image that was captured out of focus.

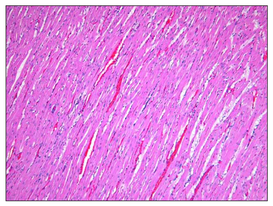

**Figure 6B** represents an image that was captured in focus. Details are sharp and no adjustments are necessary.

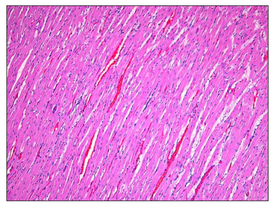

**Figure 6C** represents image 6A that has been sharpened in Photoshop®. **This image is acceptable for submission to *Toxicologic Pathology.***

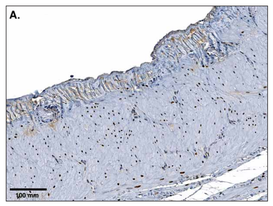


**Figure 7A** represents an image with incorrect labeling of figures. The figure letter was located in the upper left corner. The scale bar was located in the lower left corner of the image.

**Figure 7B** represents the standard guidelines for labeling images for Toxicologic Pathology. The figure letter is located in the lower left corner of the image. The scale bar is located in the lower right corner of the image.

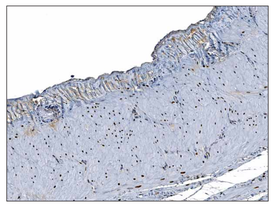

**Figure 7C** represents image 7A where the scale bar has been cloned out using Adobe Photoshop®. **This image is NOT acceptable for submission to *Toxicologic Pathology.* Please see Ethics Poster.**

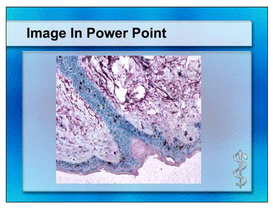


**Figure 8A** represents an image that has been embedded in a PowerPoint® file.

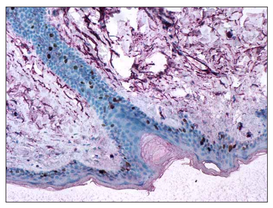

**Figure 8B** represents the original image prior to embedding in PowerPoint®.

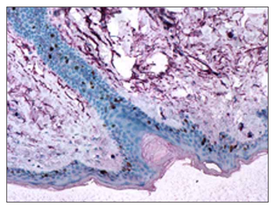

**Figure 8C** represents the embedded image extracted from PowerPoint®. **Figures 8A and 8C are NOT acceptable for submission to *Toxicologic Pathology.***

**Figure 9A** represents a digital scan of a 35mm kodachrome slide with poor illumination and a color caste.

**Figure 9B** represents image 9A that has been adjusted by cropping the border, adjusting the illumination and setting the white point in Photoshop®. **This image is acceptable for submission to *Toxicologic Pathology.***

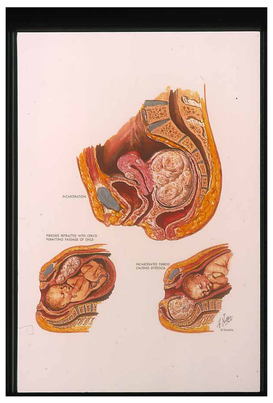

**Figure 10A** represents a flatbed scan of a drawing with a multicolored background and artifacts.

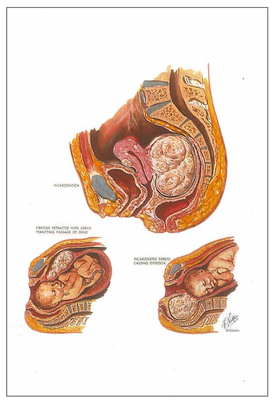

**Figure 10B** represents image 10A that has been adjusted by removing the artifacts and background in Photoshop®. **This image is acceptable for submission to *Toxicologic Pathology.***

## Worse Than Impossible

The following images are representative of some of the photomicrographs that have been submitted to Toxicologic Pathology over the years. Figures **11a and 11b** represent low light issues. Figures **12a and 12b** were captured out-of-focus. Figures **13a and 13b** were from poor flatbed scanning techniques. **These images cannot be adjusted in Photoshop® and are NOT acceptable for submission to *Toxicologic Pathology.***

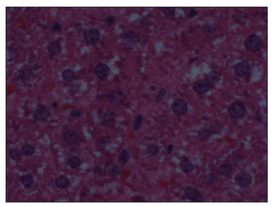

**Figure 11A**

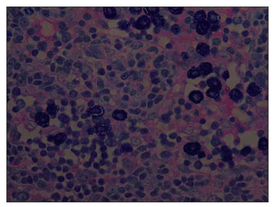

**Figure 11B**

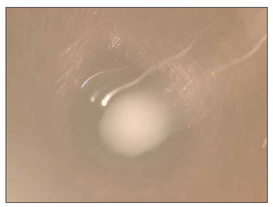

**Figure 12A**

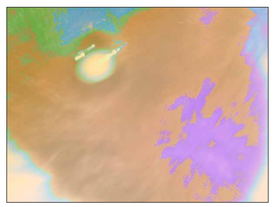

**Figure 12B**

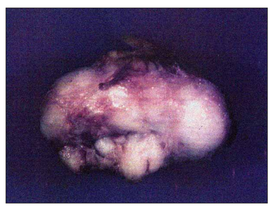

**Figure 13A**

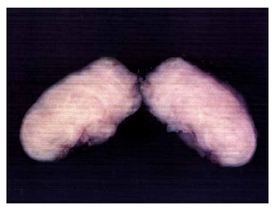

**Figure 13B**