Using Dynamic Virtual Microscopy to Train Pathology Residents During the Pandemic: Faculty and Trainee Perspectives on Pathology Education in the Age of COVID-19

Dynamic Virtual Microscopy Education During COVID-19

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The COVID-19 pandemic has forced educational programs, including pathology residency, to move to a physically distanced learning environment. Tandem microscopic review (aka “double-scoping”) of pathology cases is a traditional cornerstone of pathology education. However, this includes the use of a double-headed optical light microscope which is unfortunately not amenable to physical-distancing. The loss of double-scoping has forced educational innovation in order to continue teaching microscopy. Digital pathology options such as whole slide imaging could be considered, however recent financial restraints felt by many departments often render this option cost-prohibitive. Alternatively, a shift towards teaching via dynamic virtual microscopy offers a readily available, physically distanced, and cost-conscious alternative for pathology education. Required elements include a standard light microscope, a mounted digital camera, and videoconferencing software to share a slide image with the learner. Through survey data, we show immediate benefits include maintaining the essence of the traditional light microscope teaching experience, and additional gains were discovered such as the ability for educators and learners to annotate images in real-time, among others. Existing technology may not be initially optimized for a dynamic virtual experience, resulting in lag time with image movement, problems focusing, image quality issues, and a narrower field of view; however these technological barriers can be overcome through hardware and software optimization. Herein we share the experience of establishing a dynamic virtual microscopy educational platform utilizing readily available technology in the pathology department of a major academic medical center in response to the COVID-19 pandemic.

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