



Histology, imaging and new diagnostic workflows in pathology

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Abstract

Introduction: Since their introduction in 1999, fully automated, high speed, high resolution whole slide imaging devices have become increasing more reliable, fast and capable. While by now means perfect, these devices have evolved to a point where one can consider placing them in a pre-diagnostic role in a clinical histology lab.

Methods: At the Massachusetts General Hospital, we are running a pilot study placing high end WSI devices in our main clinical histology lab (after the cover slipper and before slides are sent to the pathologist) to examine the requirement for both the machine and the laboratory.

Results: Placing WSI systems in the clinical lab stresses the system in terms of reliability and throughput. Significantly however, success requires significant modification to the lab workflow. It is likely laboratories need to move from manual, large batch processes to increasingly automated, continuous flow (or mini-batch) processes orchestrated by the LIS using bar coding to track and direct slides, and incorporating the decision to image into the specimen type and the histology orders. Furthermore, image quality, capture speed and reliability are functions of the quality of the histology presented to the WSI devices.

Conclusions: Imaging in pathology does not begin in a WSI robot but in the grossing room and in the histology lab. As more and more imaging devices are placed in histology lab, the inter-relationships histology and pathology imaging will become increasing understood.

Key words: Whole Slide Imaging, Histology

