

Creating a Digital Histopathology Repository: A Novel Educational Tool for Housestaff

Brandon Veremis, DDS, Devi Jeyachandran, MD, Matthew Hanna, MD, Tamara Kalir, MD, PhD

Background

A resident's training in anatomic pathology focuses largely on developing the ability to generate the final pathologic diagnosis. A pathology resident faces a vast disease repertoire that includes an expanding array of ancillary tests. The time is ripe to explore enhanced teaching modalities over traditional methods. In recent years, systems have emerged to store high-quality, whole slide images. These images can be manipulated via use of a mouse, so the user can select desired magnifications and navigate areas of interest throughout the virtual tissue image.

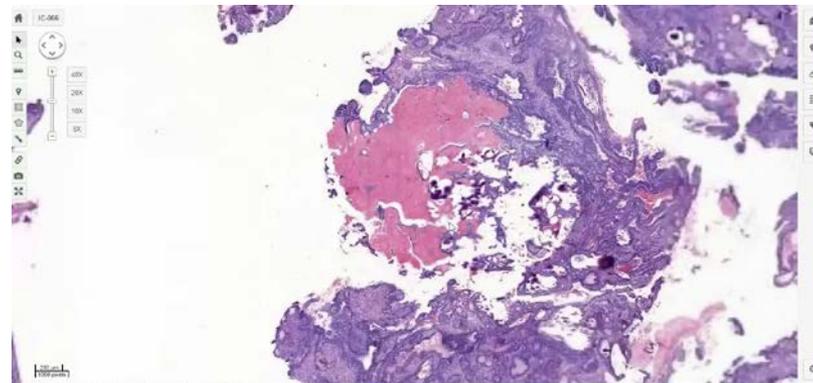
The major advantages of digital histopathology over the use of conventional "analog" slides are:

- While the quality of physical slides degrades over time, a well-maintained digital medium has the capacity to last in perpetuity.
- Digital slides can be accessed from any place with an internet connection.
- Multiple users in multiple locations can access the same material in unison.

We herein summarize our creation of a digital slide repository, as well as its introduction into the pathology educational curriculum.

Methods

Slides of cases deemed to have educational value (including rarities) were de-identified and scanned using a 3DHistech Panoramic whole slide scanner with output as *.mrxs files. These files were saved to a standard external hard disk drive and uploaded to a slide viewer software (Simagis PathForce). Corresponding de-identified clinical information was also entered.



Results

277 scanned slides have been uploaded to the PathForce database. Many of these cases were initially presented at a bi-weekly 'Interesting Cases' conference, wherein residents generate a differential diagnosis based on H&E digital images, as well as work up, results, and final diagnoses. These companion data will be entered into PathForce such that housestaff may use the system as a study/test tool. A resident is able to simulate an actual cases 'sign-out' by viewing the H&E image, changing magnifications, generating a differential diagnosis, recommending ancillary tests and then viewing the "answers," including final diagnosis.

Conclusions

The creation of a digital histopathology database has allowed us to catalog unique de-identified patient cases. The educational potential of this database is tremendous.