



BACKGROUND

Medical pathology rounds give staff pathologists the opportunity to collaborate with peers and share interesting and challenging pathology cases. Traditionally, a multi-head microscope was used to view slides¹ while the presenting pathologist reviewed case details and discussed pointed examples of diagnostic features.

With the advent of digital cameras, medical pathology rounds moved from using multi-headed microscopes to using a microscope with a mounted camera and a large HD monitor.² Rounds were presented in a meeting room setting which allowed for more participants to attend.

Now with the availability of Digital Whole Slide Imaging (WSI), pathologists can submit interesting cases for WSI scanning and present cases during a Digital Slide Conference. Here we describe our transition to presenting rounds in a digital pathology platform.

PATHOLOGY ROUNDS VIA MICROSCOPE

- Microscope, camera and monitor were located in a meeting room. (Figure 1, Figure 2.)

Figure 1.

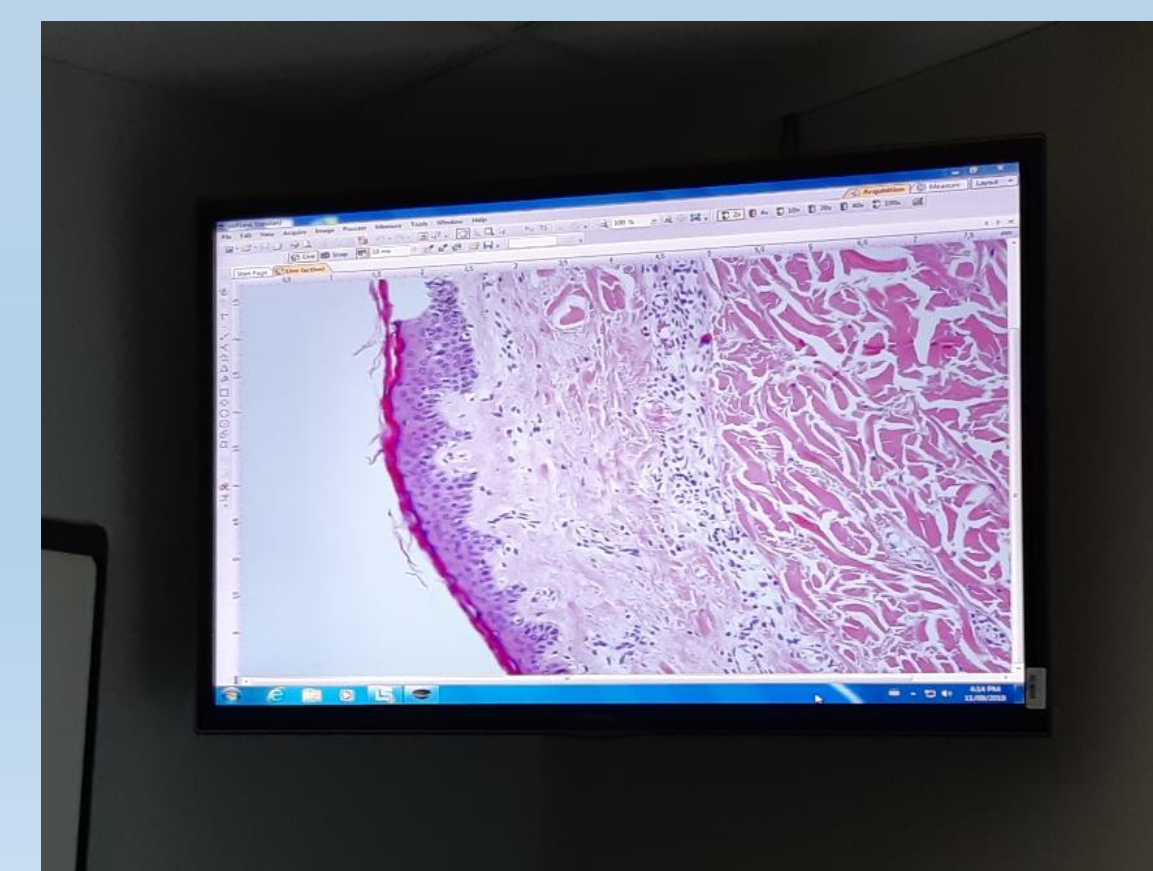


Figure 2.

- The microscope digital camera computer software was used to translate the microscope field of view image to the large TV monitor for observation.
- The TV monitor image needed constant fine focus adjustment to be viewed clearly by the group which frustrated participants and presenters.

PATHOLOGY ROUNDS VIA DIGITAL PATHOLOGY

Equipment used:

- Aperio ScanScope CSO scanner (Leica Biosystems Imaging, Vista CA)
- eSlide Manager Database software Version 12.3
- Computer monitors, keyboards, mouse
- Conference phone with 2 microphones
- Overhead projector and wall

- All staff and residents were provided log-in credentials to eSlide Manager.
- Presenting pathologists provided complete cases for scanning prior to a rounds session.
- Pathologists presented rounds using the Digital Slide Conferencing function of eSlide Manager. (Figure 3.)

- Participants used individual computer stations located in the computer lab with a conference phone or from their remote office location and calling into the conference number. (Figure 4.)

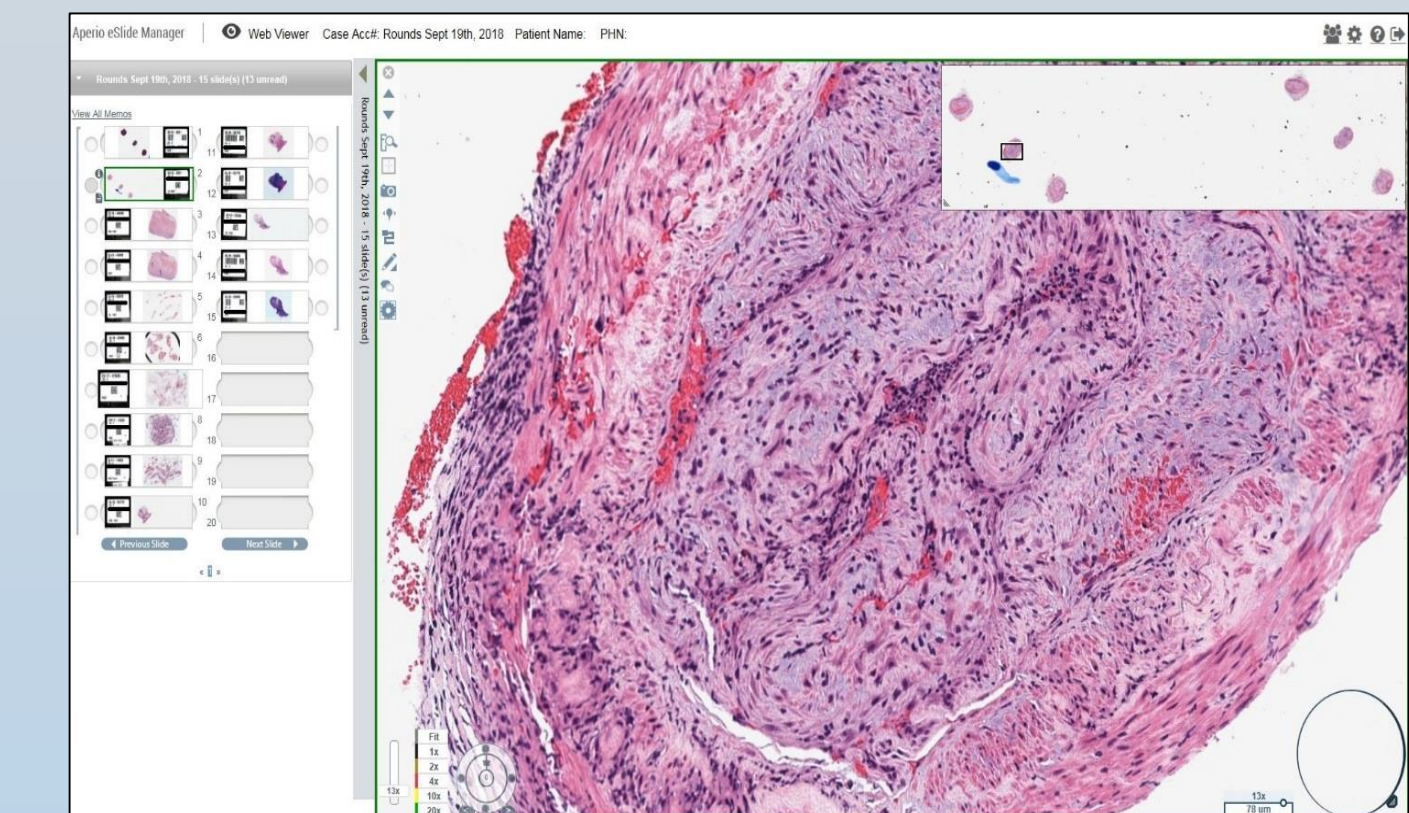


Figure 3.

Figure 4.



METHODS

ROUNDS PARTICIPANTS

- Medical Staff Pathologists
- Anatomical/General Pathology residents
- Pathology Assistants

LEARNING ACTIVITIES AND GOALS FOR ROUNDS

- Review of interesting cases, rare or difficult diagnosis, Q&A period
- Review of problem stains or fixation issues
- Collaboration of peers and pathology residents
- Review of College of American Pathologists (CAP) Performance Improvement Program (PIP) slides and supplemental material

PATHOLOGY ROUNDS VIA MICROSCOPE

Equipment used:

- Dual headed Olympus BX51 microscope
- Olympus DP72 12.8MP high resolution C-mount camera
- Olympus Cell-Sens software
- Samsung 55 inch HD Smart television

RESULTS

	Rounds via Microscope with TV monitor	Rounds via Digital Pathology
Image quality	<ul style="list-style-type: none"> • Suitable image quality but with several seconds of blurry resolution between regions of interest. 	<ul style="list-style-type: none"> • High definition quality image at all times.
Time between multiple slides	<ul style="list-style-type: none"> • Switching out glass slides on the microscope, scanning slide and refocusing for the group resulted in a significant time delay during each case presentation. 	<ul style="list-style-type: none"> • The Digital Slide conference's Virtual Slide tray allowed for fast, seamless transitions between slides and cases. • Group sees a clear image during slide scan for diagnostic features.
Number of attendees	<ul style="list-style-type: none"> • Meeting room seated 10 -12 people. • Limited by viewing distance to monitor. 	<ul style="list-style-type: none"> • Computer room has 16 stations • Unlimited number of attendees can join the Digital Slide Conference from their own offices at any site.
Location of presenters	<ul style="list-style-type: none"> • Presenters had to be on-site with glass slide tray and case details available for review. 	<ul style="list-style-type: none"> • Presenters can be located off-site. • Digital Slide Conference allows for any attendee to request control of the conference to present cases.
Number of cases presented during rounds	2015 <ul style="list-style-type: none"> - 4-5 cases presented per session. - Rounds took place 7 times. - Each session was 60-70 minutes. 	December 2017 <ul style="list-style-type: none"> - First Digital pathology rounds session. 5 cases presented. - Session was 50-60 minutes.
Number of Pathology rounds session scheduled	2016 <ul style="list-style-type: none"> - No rounds sessions took place this year. 2017* <ul style="list-style-type: none"> - 4-5 cases presented per session. - Rounds took place 16 times. - Each session was 60-70 minutes 	2018 <ul style="list-style-type: none"> - 6-8 cases presented per session. - Rounds took place 16 times. - Each session was 45-50 minutes.
Approximate length of rounds sessions	<ul style="list-style-type: none"> - Each session was 60-70 minutes 	<ul style="list-style-type: none"> - Each session was 45-50 minutes.

- *January 2017, internal pathology rounds received accreditation from the Royal College of Physicians and Surgeons of Canada for Continuing Medical Education (CME) credits. This incentive ensured that rounds sessions were a priority for staff to organize and participate in.
- In 2017 a digital pathology platform was selected for education purposes. Pathology resident training and staff internal pathology rounds sessions were the first priorities for implementation.
- Staff participated in the first digital pathology rounds session in December 2017. Consensus was that the new platform was far superior to using the microscope and TV monitor.
- Pathologists began to scan all ancillary slides to demonstrate which stains were significant and which were inconclusive or surprisingly negative. This led to a more detailed and educational review of cases.

CONCLUSIONS

Medical pathology rounds have become an integral part of the collaboration between pathology peers and an excellent opportunity for pathology residents to participate in the learning activities. Digital pathology has streamlined the process of sharing cases, allowing pathologists to discuss cases in more detail.

There were a number of pathologists who were eager early adopters of digital pathology and regularly provided cases for scanning and presentation. These leaders paved the way for other pathologists who routinely attended digital rounds as participants, to become presenters themselves. The use of digital pathology has also significantly increased the number of pathologists who attend rounds, with a minimum of two participants that remotely join in from distant sites at every session.

Using digital pathology for pathology rounds has given staff pathologists a familiarity and comfort of scanning and viewing diagnostic tissue in a digital platform. As the uptake of digital pathology grows in the pathology community, these pathologists will be strong advocates for this technology.