



Utilizing Virtual Microscopy to Evaluate Practical Histology during Pandemic COVID-19

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ARTICLE HISTORY

Received: 30-Sep-2022, Manuscript No. EJMJIH-22-76836;
Editor assigned: 03-Oct-2022, PreQC No. EJMJIH-22-76836 (PQ);
Reviewed: 17-Oct-2022, QC No. EJMJIH-22-76836;
Revised: 24-Oct-2022, Manuscript No. EJMJIH-22-76836 (R);
Published: 31-Oct-2022.

Description

An emerging technique for histologic/pathologic education is Virtual Microscopy (VM). Using several microscope lenses and different planes, tissue slices mounted on common glass slides are digitally photographed to create the VM image. The software will then use compression to create a composite image that can be displayed on computer monitors from the big image files. Students will then be able to freely scan the tissue segment while navigating the specimen by using the computer mouse. Additionally, clicking the mouse will enlarge and sharpen the needed area. Medical students have traditionally received instruction in practical microscopy skills and information using traditional microscopes (CMs). In order to teach practical histology to Taif medical students during the COVID 19 epidemic, the use of Virtual Microscopy (VM) was established.

Practical light microscopy lessons are fundamental components of biology and medical education. Histological slides and Conventional Microscopes (CMs) were used in the traditional distribution techniques for imparting knowledge and skills in this field. The goal of the Histology practical lessons is to teach students how to recognise various cells and tissues. This is necessary so that students can distinguish between healthy and sick tissues and draw the connections between structure and function. Unfortunately, the integrated curriculum did not allow enough time for instruction on CM usage skills for medical students. An emerging technique for histologic/pathologic education is Virtual Microscopy (VM). Using several microscope lenses and different planes, tissue slices mounted on common glass slides are digitally photographed to create the VM image. The software will then use compression to create a composite image that can be

displayed on computer monitors from the big image files. Students will then be able to freely scan the tissue segment while navigating the specimen by using the computer mouse. Additionally, clicking the mouse will enlarge and sharpen the needed area.

During the COVID 19 epidemic, a method of teaching practical histology through virtual reality (VR) was devised for Taif medical students. The use of virtual slides to teach microscopic histology was put into practise successfully. We concentrated on how to support the unique requirements of online distance assessment at COVID-19 Pandemic while also ensuring that the student achieves the course's practical outcomes and learning domain. In the endocrine module, VM was utilised to teach and evaluate histology interpretation skills. The duties involve scanning the histology slide using a laptop's virtual microscope, identifying various tissues, looking for particular pieces, and pointing to specific cells or organ structures. The final product will be a snapshot that the students capture and submit to the teacher for assessment using the three-item rubric. The goal was to assess students' ability to interpret virtual histology slides to distinguish between various body tissues and cells while applying knowledge to recognise their distinctive microscopic features.

In the context of the COVID 19 pandemic, where online learning is established, this study intends to examine the validity of employing Virtual Reality (VR) to teach and assess histology for medical students as well as to identify students' perceptions of VR versus CM. Our findings showed that VM is not only a successful way for teaching histology, but also a method for assessing student performance during an online test without impacting test results. It keeps students' performance during remote learning, which may

be attributed to a rise in interest in microscopic research and the convenience of studying histology at home whenever they want. It has been demonstrated through empirical research that using VM can improve and renew the teaching and learning process for histology in a straightforward manner.

To create a valuable applied tool for enhancing the reliability, validity, and uniformity in the histopathology education and pedagogy, we advise broader use of VM in learning and evaluation at the basic science level as well as in online group discussions of clinical cases.