

CASE STUDY:

JEFFERSON DERMATOPATHOLOGY CENTER

Jefferson Dermatopathology Center goes beyond glass to streamline residency education with the Concentriq™ platform from Proscia®, then looks to expand to clinical settings



Jefferson

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PROBLEM

Dr. Jason Lee, Director of Jefferson Dermatopathology Center, knew that digital pathology could streamline how the notoriously complex dermatopathology specialty is taught, but most platforms he evaluated had limitations around viewing and sharing large whole slide images.

KEYWORDS

- Dermatopathology
- Continuing medical education
- Remote access and collaboration
- Digital workflows
- Data portability
- File degradation

INTRODUCTION

Jefferson Dermatopathology Center Director Dr. Jason Lee trains students and residents in the challenging medical specialty of dermatopathology. Whereas clinicians working in other pathology specialties may learn to identify 20 to 30 different diagnoses, dermatopathologists must be able to identify hundreds of unique diagnoses. Dr. Lee is well regarded as an expert in this field, making him a highly sought-after educator and the frequent recipient of requests for consultation.

Like other pathology specialties, dermatopathology has historically relied on glass slides. Unfortunately, this modality has imposed restrictions on how experienced practitioners train the next generation of dermatopathologists. Without an easy way to capture and share a biopsy, both students and the expert instructors who attend Dr. Lee's classes were dependent on access to multi-head microscopes during in-person sessions. This meant that students and guest lecturers needed to travel to Philadelphia to participate.

The limitations of glass were also making it difficult for Dr. Lee to manage his slide library. "Storing and organizing my slides was a continuous effort – one with diminishing returns," Dr. Lee explained. "I have about 50 boxes that can house 100 slides, so I had to be very meticulous in terms of how I organize them since I had to manually select a group of slides whenever I wanted to teach on a new theme or match students' level of expertise. And they all fade over time. That's just what happens with glass slides."

Dr. Lee knew that access to quality dermatopathology training was more critical than ever before; the population of dermatopathologists continues to decline as the number of biopsies requiring diagnosis readily increases. He recognized that digitizing his cases could transform his work and was aware of several solutions that would allow him to do so; however, each had limitations of its own. Some solutions lacked the full suite of features he required. Others weren't responsive. Many could not scale to support the large file sizes of whole slide images, forcing pathologists to deal with pixelation as they navigated an image and hampering their ability to read and interpret cases.

"As I tried different digital pathology software, I was disappointed," said Dr. Lee. "Few offered an experience that was truly superior to glass. Searching and moving digitized files around a database was still a labor-intensive process. Navigating around an image and zooming in and out of a single file using slow software tools lacked the responsiveness we're accustomed to from today's average e-commerce site. And, trying to teach the nuances of dermatopathology on pixelated images offered by most applications was all but impossible."

As a result, none of the tools Dr. Lee had explored were suitable.

SOLUTION

Dr. Lee also knew that his students' dermatology board examinations were approaching – and the examination format was slated to transition from assessing 20-30 glass slides with a microscope to virtual slide exams. Wanting to prepare his students as best as possible and with this deadline on the horizon, Dr. Lee continued to evaluate other platforms until he discovered the Concentriq digital pathology platform.

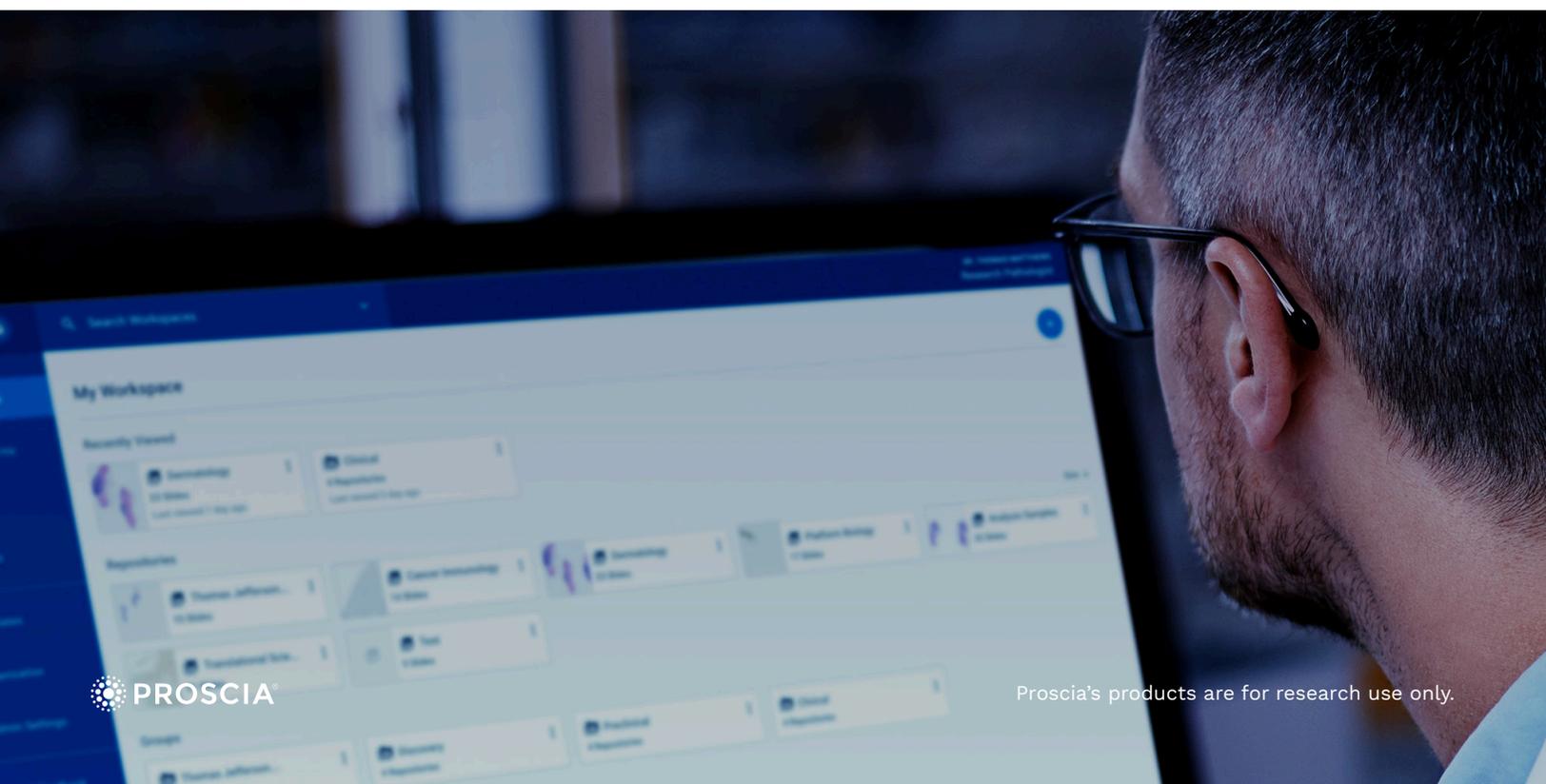
In 2016, Dr. Lee approached Proscia to discuss the process of hosting his classes on Concentriq. He called Proscia on a Friday and was immediately impressed by the platform. Built on a modular architecture for quick implementation, the Concentriq Academic Research & Education Edition was up and running at Jefferson on the following Monday so that Dr. Lee could begin compiling study material for his students.

“The first thing I noticed was how responsive the Concentriq platform was,” said Dr. Lee. “Concentriq has a very fast image load time, which meant that it could deliver unpixelated images quickly. I could finally assess large images without waiting on slow software, zoom in and out where necessary, and see important nuance.”

Additionally, Dr. Lee leveraged Concentriq's collaboration and sharing features. Sharing files with others was very fast with Concentriq. Not only was sharing files as easy as logging on or sending an email, but it was also easier to build a workflow around the digital files compared to glass.

After hosting a summer course on the Concentriq platform, Dr. Lee began digitizing his glass slides stored in boxes to build a comprehensive set of dermatopathology cases. This teaching material allows him to customize lessons and also serves as an easily accessible resource for students to study in preparation for their dermatopathology board exams.

“Concentriq's annotation feature was essential for teaching. Any of us could now make notes and ask questions on shared files,” added Dr. Lee. “The solution's region of interest capture capability made it simple to zoom in on a particular section of an image making it clear where a special area of concern may have otherwise been concealed.”



BENEFITS

As a result of incorporating Concentriq into his workflow, Dr. Lee has been able to make his coursework more accessible to students and other experts regardless of location.

“To teach dermatopathology, I previously needed several microscopes with the same cuts of a slide or re-cuts of the same case and many microscopes,” said Dr. Lee. “Now, I can scan a slide once, store it forever, and easily share it over and over without risk of file degradation - and without the limitation of microscopes. This allows me to both reuse teaching material and to open enrollment up to anyone, even students who are a plane ride away from Philadelphia. All they need to do is accept an email invitation and they’re enrolled.”

He has also been able to add new image slides, increasing the volume of data he uses in his teaching and allowing him to easily tailor his collection to the meet the needs of students at various levels and studying different topics.

“In the past, I’d have to sift through a bunch of boxes to try to collect the slides and put them in a tray. Now, I can simply log onto Concentriq to create a collection of slides for surgical pathology residents who want to see examples of unique skin biopsies or medical students who are in the process of learning the basics,” said Dr. Lee.

Furthermore, Dr. Lee sees the impact of digital pathology extending beyond teaching into clinical settings. Just as digitization makes it possible to more easily share slides with students regardless of location, it can streamline his process for performing remote consults, delivering important efficiencies.

“Consulting with my mentor in New York or receiving cases from another facility in Delaware required sending glass slides via snail mail. Not only did this process result in delays, but it also made it difficult to have collaborative discussions around nuanced cases. Digital pathology can help my colleagues and me to share annotations and view the same slide in real time.”

As he increasingly realizes the benefits of digitization, Dr. Lee hopes to completely transform his efforts and sees Concentriq – with its robust feature set and pipeline of AI applications – as playing a key role. Digital pathology is driving tremendous benefits for the Jefferson Dermatopathology Center, enabling it to finally overcome the limitations of glass slides.

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for the future of pathology, visit
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