Feature

The pathology summer school: new paths and astonishing discoveries

Eva Ruiz-Daum
Year 5, Medicine, University of Exeter
Email: emr225@exeter.ac.uk

What is the Royal College of Pathologists' summer school?

Once a year, in August, the Royal College of Pathologists in partnership with several sponsors host a free two day course for medical and biomedical students (King's College London Guy's Campus and the Royal College of Pathologists) in central London. This showcases the weird and wonderful opportunities a pathology career holds, ranging from sub-specialist consultant posts in neuropathology, to the biomedical scientists working in clinical biochemistry. As well as career talks walking through the practical aspects of what training and qualifications are required for a career in pathology, small group breakout sessions are run throughout both days to give a taste of the day-to-day problems one may encounter while working in this field.

In addition to formal teaching, the occasion is the perfect opportunity to meet with medical and biomedical students in all year groups from all over the UK, with plenty of coffee breaks and a dedicated BBQ for participants to get to know each other. Not only was this a fun respite from the academic sessions of the day, but it was also a great chance to find out what it is like to work and study in other parts of the UK. The staff and keynote speakers were equally approachable and friendly during breaks and throughout the day.

What made me want to attend?

Despite being in my final year of medical school, I have had very minimal exposure to pathology as a specialty. If anything, the dry histology content didactically taught in the early years of medical school left me with a jaded view of the discipline. Overcoming my initial bias, I went into this event with an open mind after reading the glowing reviews from attendees of the previous years. To my surprise, I was met with exuberant consultants and scientists passionate about their contributions to the medical field who are content with the work life balance that this specialty provides . Their enthusiasm was infectious, and I could not help but share their excitement in recent and historic innovations in the field.

One particularly inspiring doctor at the pathology summer school was **Dr Matthew Clarke**, an NIHR Academic Clinical Lecturer and diagnostic neuropathology ST4 (with an interest in pediatric neuropathology and molecular pathology) based in London. Having initially studied BSc Zoology and spending time training in surgery before eventually entering pathology, it was fascinating to hear his perspective of what led him to where he is today. He was kind enough to answer a few questions for our journal:

What sessions did you lead and what behind the scenes work to put the event together?

I have been involved in the pathology summer school for about 9 years, along with my colleague Katie Allen, a histopathology trainee. In 2024, I led the pathology pots session and also gave a talk about the opportunities that are available in pathology training. The pots session allowed students to come and have a look in more detail at some of the incredible specimens that are in the Gordon Pathology Museum. We were able to talk through some of these different specimens and work out what the pathology or disease process might be, helping to relate it back to the patient and their potential experiences. The museum is an incredible resource for pathology education and it is a pleasure to be a part of these sessions each year. Before each session, I walk through the museum and find a selection of specimens to use – I always find new ones that I have not seen before that students might be interested in! I try and select a few of the more common pathologies, but also some of the rarities too which are always interesting to talk through.

What are a few of your proudest moments over the course of your career?

Some of my proudest moments are the following; as part of my PhD project, with the help and tuition of an amazing research team at the ICR (headed by Professor Chris Jones) and our fantastic national and international collaborators, I helped to discover a new type of high-grade glioma (a very aggressive brain tumour with a dismal prognosis) that occurred in infants. I was able to show that it contained just a single

molecular alteration (a translocation) and these were targetable with drugs. Infants with this tumour are now able to enter clinical trials and are surviving after being given treatment. The scientific paper we published led to the creation of a new chapter in the WHO Classification of CNS Tumours about this tumour. I am regularly contacted by families and clinicians from around the world providing positive updates about their patients/child – I am so proud to have been part of an amazing research team that was able to make a difference for these children and help to lead this work through the completion of my PhD. Also, throughout my career, I have held several representative roles including being Chair of the Royal College of Pathologists Trainees' Advisory Committee, a BDIAP Trainee Councillor, Editor of ACP news, and also the Chair of the Academy of Medical Royal Colleges, Trainee Doctors' Group. I have been very proud to represent trainees in these different roles, and lead projects within the committees that have helped to bring a positive impact on training. I have worked with an amazing set of colleagues who helped with these.

Does your zoology degree play into your day-to-day work as a consultant?

My degree in Zoology was hugely beneficial; it provided me with a solid foundation of knowledge in comparative anatomy and physiology. We covered a lot about human-based anatomy and physiology too, which has been very useful throughout my entire career. Having an appreciation of the biology of other animals is very important in medicine; there are many diseases which can affect multiple species, and also many different zoonotic infections which can jump from one species to another. As well as being immensely interesting, and something I continue to study outside of my daily work, from my perspective, it is important to have an awareness of what is also happening in the natural world. Climate change is an example, and something which is going to have a huge impact on the spectrum of different diseases, and therefore the cases we may encounter as pathologists.

Could you briefly summarise your journey into medicine and where you are today?

I completed a BSc degree in Zoology at the University of Liverpool before deciding that I wanted to do medicine. I didn't get a place at medical school at the first attempt so I took a year out, got some more work experience and worked at a playgroup, and then finally got a place at Keele Medical School in 2005. After graduating in 2010, I chose to stay at the hospital where I trained for my foundation jobs. I had been heading for a career in surgery, but a 4-month post in histopathology during my FY2 year changed my perspective. I still applied for core surgical training, and successfully got a place in London. However, I could not forget about pathology! I completed my MRCS examinations but then changed career paths to join histopathology. After 2.5 years of training, I spent 6 months at Institute of Cancer Research learning about molecular pathology. This led to the completion of a 4-year PhD in the molecular pathology of infant gliomas. After this, I decided to switch training programmes to diagnostic neuropathology (a subspecialty of cellular pathology). I currently work as an NIHR Clinical Lecturer in a split role between clinical work and research. I am based at the National Hospital for Neurology & Neurosurgery (UCLH) for my clinical training and at the Institute of Cancer Research (as part of the Glioma Team, headed by Professor Chris Jones) for my research work. I am aiming to specialise in paediatric neuropathology and molecular pathology, and having recently completed my final FRCPath examinations, I am exploring the opportunities to become a consultant!

What do you wish was taught in medical schools about pathology/histology?

It is very sad that very little pathology is being taught in medical schools with each new iteration of the curriculum. Understanding the different mechanisms of disease is fundamentally important to help doctors understand how a disease is impacting a patient, and to be able to explain to a patient what is happening to them and how it can be treated. It is also very interesting to be able to see what different diseases look like and the effects on different organs and tissues. Understanding what normal tissues look like under the microscope is important to be able to recognise when something might be abnormal. Integrating pathology as part of case-based teaching (just as it is integral to almost every patient that comes into a hospital) is a really engaging way of understanding the basics of pathology, and is important across all years of medical school, not just the early few. It is also important to teach medical students how important it is to provide the clinical information about the patient's signs, symptoms, past medical history etc. on the pathology request forms; this can make a huge difference to the diagnosis we provide, and so without it, it can have a huge impact on the patient. Without pathology being taught to medical students, future doctors will not have an appreciation of how important this is.

What are some examples of flexibility in this field?

There is a lot of flexibility in pathology, both within and post-training. There is flexibility to work less than full time, and explore different elements of a medical career including teaching and research. There are opportunities to be able to take time out of training and visit different labs or get some research experience – you could even do a PhD like I did! When you complete your training, there is flexibility to be able to shape the consultant or specialty job that best suits you, including thinking about the particular subspecialties you want to work in, how much clinical or research time you want to have, potential leadership and management roles, training responsibilities, and also where in the country you may want to work – there are plenty of job opportunities available for all!

Photo of Dr Clarke kindly provided by himself.

Overall experience

As this is a highly oversubscribed event, I recommend applying as soon as possible, but if you do not have the chance to attend, the Royal College of Pathologists website showcases plenty of free resources open to students, including webinars. It is also well worth approaching your local microbiology, haematology histology or immunology department for some hands-on experience too.

Whether you are already set on reading forensic pathology or scared of a histology textbook, I would highly recommend this summer school to any medical or biomedical student who has an open mind to pathology; you will not regret it!

Eva Ruiz-Daum

My name is Eva and I am a fifth-year medical student at the University of Exeter. I have loved spending these past few months meeting with scientists and consultants with incredible insights into the world of health from their research and career paths. Although I am open minded to all specialities, I am especially passionate about internal medicine. My hobbies outside of medicine include drawing, classical guitar, learning languages and swimming.