**Muscle biopsy preparation and Introduction to Interpretation**

-Dr Janice Brewer  
Histopathologist, Royal North Shore Hospital

Abstract:

Despite the expansion of ancillary testing to more clearly define the nature of musculoskeletal disorders, for many conditions open muscle biopsy and light microscopy (with or without electron microscopy) still underpin clinical diagnosis. Many of the stains used rely on enzymatic reactions, so appropriate harvesting and laboratory handling of fresh tissue are essential. In this presentation, the most commonly employed histochemical and enzymatic stains will be outlined and illustrated and some newer investigative techniques will be mentioned. A few case examples will be shown to demonstrate how a diagnosis can be reached using a combination of clinical history, physical examination and muscle biopsy findings.

Bio:

Dr Brewer is a senior staff specialist histopathologist/neuropathologist with 30 years’ experience, who works with Pathology North, based at Royal North Shore Hospital, St Leonards, NSW. She has interests in surgical neuropathology, musculoskeletal pathology and placental pathology. She developed an interest in muscle biopsy interpretation while a registrar at Royal North Shore Hospital, training under the mentorship of her former colleague and neuropathologist, Dr Judith Fryer. Pathology North provides a muscle biopsy service for the Northern Sydney and Central Coast regions as well as accepting samples from other remote areas of New South Wales.

**PROSTATE DISEASE – HOW CAN ONE LITTLE GLAND CAUSE ALL THAT TROUBLE?**

-Dr Fiona Maclean, Deputy Director – Histopathology, Douglass Hanly Moir Pathology  
Dr Carole Harris, Medical Oncologist, St George Hospital  
Dr Dominic Lee, Urologist, St George Hospital

Abstract:

A panel of three expert medical specialists with a special interest in prostate disease – Dr Dominic Lee (Urologist), Dr Carole Harris (Oncologist) and Dr Fiona Maclean (Anatomical Pathologist) will discuss investigation and management of prostate disease, with a special focus on the key importance of laboratory findings. Although this is a serious topic for histotechnologists, the general community, and possibly individual members of the audience, and will be discussed thoughtfully, there will be some history, humour and hijinks included. This promises to be a fun but enlightening session in which histopathology will come to life in the context of patient scenarios and frank discussions amongst the panel.

Bios:
Dr Fiona Maclean
Deputy Director – Histopathology, Douglass Hanly Moir Pathology

Dr Fiona Maclean graduated from the University of Sydney with first class honours. She worked as a resident medical officer at the Concord Repatriation General Hospital, where she was awarded Intern of the Year in 1999. Dr Maclean is Deputy Director of Histopathology at Douglass Hanly Moir Pathology. She is passionate about teaching pathology and enjoys presenting lectures to people from all walks of life. Dr Maclean is a Senior Lecturer in Pathology at the School of Medicine, University of Notre Dame, and Lecturer in Pathology at Macquarie University. She is co-author of two chapters in the current edition of Sternberg's Diagnostic Surgical Pathology, one of the premier textbooks of pathology. Dr Maclean is currently the Secretary of the Australasian Division of the International Academy of Pathology.

Special interests: Anatomical pathology, cytopathology, focusing on urological pathology, bone and soft tissue pathology
Also, just completed the “Joint” chapter for the 5th edition of Histology for pathologists (Mills) which is due to be published later this year.

Dr Carole Harris
Medical Oncologist, St George Hospital

Dr Carole Harris is a Medical Oncologist with a special interest in treating breast cancer and genitourinary malignancies (kidney, prostate, bladder and testicular cancer). Dr Harris graduated from Medicine at the University of Sydney Medicine with honours in 2002 and was awarded a fellowship in Medical Oncology with the Royal Australian College of Physicians in 2009. She went on to complete a Masters of Medicine (Research) in pharmacoepidemiology at the University of New South Wales in 2014.
Dr Harris is a staff specialist at St George and Sutherland Hospitals and a VMO at St George Private Hospital. As well as her clinical interests, she is heavily involved in education as a clinical lecturer at UNSW, where she teaches undergraduate medical students and runs the oncology teaching program at St George and Sutherland Clinical School.
Her research interests are based around the use and effectiveness of targeted cancer therapies both in clinical trials and in the post market setting. She is an investigator on a number of clinical trials and an examiner with the Royal Australian College of Physicians.
She is a member of a number of professional societies including the Medical Oncology Group of Australia, Clinical Oncology Society of Australia, American Society of Clinical Oncologists, Australian
Dr Dominic Lee is a highly experienced Australian-trained Urologist who has trained at some of the World’s leading urological institutions. He is one of only a few surgeons in Australia who is trained in both minimally invasive and robotic cancer surgery, as well as reconstructive female urological surgery. Dr Lee also provides cosmetic men’s surgery.

Dr Dominic Lee has a significant record in academic medicine and research, with multiple publications in the field of urology and surgery. This allows him to stay on top of the latest advances in urological sciences, novel surgical techniques and emerging treatment options.

**Areas of Expertise:**
- Complex robotic & laparoscopic cancer surgery (prostate, kidney, bladder)
- Kidney stone removal
- Female reconstructive surgery (pelvic floor, urinary tract, vaginal prolapse)
- Transvaginal mesh removal surgery
- Penile curvature corrective surgery
- Testicular prosthesis surgery
- Sexual dysfunction (erectile dysfunction, premature ejaculation, painful sex)
- Incontinence & voiding dysfunction
- Circumcision (12+ years old only)
- Vasectomy surgery
- Neurourology

**Practical Tips on Eye Pathology**
- Dr Geoffrey Hall & Dr Alexandra Allende
  Histopathologists, Douglass Hanly Moir Pathology

**Abstract:**

Eye specimens can be intimidating to the uninitiated scientist in the laboratory as the specimens submitted often seem to be either tiny, wrinkled, un-oriented wisps of tissue, have complex orientations such as wedge resections or show impossibly complex anatomy such as eye globes in enucleations. Many types of specimen are infrequently encountered and there may be a lack of experience or confidence in dealing with the tissue. This uneasiness is further compounded by unfamiliar and bewildering terminology in clinical ophthalmology and ocular pathology.

We will cover the cut up approach to corneal specimens, conjunctival specimens, eyelid specimens including canthus and caruncle, and globe specimens. By the end of the lecture you should feel more comfortable in approaching cut up of eye specimens and have a better understanding of the reasons why different approaches are necessary.
Bio:

Dr Geoffrey Hall

Dr Geoffrey Hall graduated from the University of Auckland Medical School, New Zealand, in 1992 and completed his internship and resident years at Royal Prince Alfred Hospital, Sydney. He has had extensive clinical medical experience, with interests in surgery, medical information technologies and ophthalmology. Dr Hall has completed his ophthalmology RANZCO Part I exam and a Master of Public Health degree from the University of New South Wales. His anatomical pathology training was based mainly at Westmead Public Hospital, with rotations to Nepean Public Hospital, Douglass Hanly Moir Laboratory and North Shore Public Hospital. During his training, Dr Hall has been involved in a number of research projects, several of which have resulted in publications in peer-reviewed journal articles. A number of these projects have been collaborations with clinicians. He has particular interest in gastrointestinal tract, ocular and neuropathology. Dr Hall also enjoys lecturing students, as well as demonstrating anatomical pathology techniques, and hopes to continue his teaching role in the future.

Dr Alex Allende

Dr Alex Allende is a medical graduate of the University of Sydney. Following extensive experience in clinical medicine for several years, with particular interests in ophthalmology and research, she undertook a Doctorate of Philosophy in the discipline of ophthalmology at the University of Sydney, with the support of an NHMRC scholarship. The thesis, incorporating histological and molecular studies into the mechanisms of vascular development in the choroid and retina, inspired her to train in anatomical pathology, which was undertaken primarily at Westmead Hospital, with additional rotations to Nepean Hospital and Douglass Hanly Moir Pathology. Following completion of training, which included teaching, journal publications and conference presentations, she joined the histopathology department at Douglass Hanly Moir Pathology. Her knowledge has been developed further by taking part in an observer ship in Wills Eye Institute, Philadelphia, by being involved in research in ocular and gastrointestinal pathology and by being actively involved in teaching pathology and ophthalmology registrars, as well as medical students, with appointments at Notre Dame University and Macquarie University.
**Mass Cytometry – New Way With Immunohistochemistry**

  - Dianne Reader, Royal North Shore Hospital

**Abstract:**

In 1942 antibodies were first introduced to label tissues sections to visualize pneumococcal antigens. The existing immunohistochemical methods use antibodies that are tagged with fluorophores or enzyme reporters which are visualised as coloured labels of antibody binding. As a mainstay of clinical diagnostics, this technique is primarily used to assess the spatial distribution of one, two and rarely more antigens of cells or their products in tissue sections. From here immunohistochemistry has become a tool that visualizes protein or receptors in majority of solid tissue malignancies.

Multiplex immunohistochemistry is not routinely done on formalin fixed tissue in the clinical laboratory setting, this method being a research tool. With the use of metal tagged antibodies and multiplex ion beam imaging, the technique has been applied to formalin fixed human breast tumour tissue and labelled with ten different antibodies simultaneously. This is done on one single, breast tumour tissue section on a slide.

Every time the laboratory is asked to cut sections for immunohistochemistry, it is at a deeper level in the tissue block from which the original haematoxylin and eosin stained section that was given to the pathologist. So, if the tumour is very limited in size and shape, then it is possible that the tumour may no longer be present in these deeper level sections and the immunohistochemical testing is a waste of time and resources.

The use of the multiplex ion beam imaging immunohistochemical method would eliminate this concern and the result for the patient would have a faster and better outcome. However, convincing pathologists to examine an e-photo and readout other than a microscope slide may be one obstacle too high for them to jump over.

But this method should not be only left to the research field but would be for the patients’ and clinicians’ benefit.

**Bio:**

Dianne Reader has worked in anatomical pathology for 39 years working in the public, tertiary, private, and research sectors of the industry. She has managed a laboratory and is currently the laboratory safety officer. She has increased her skills, kept up-to-date and contributes to the training of other scientists by being a long-time member and in the executive of the NSW Histotechnology Society and past member and on the executive of the NSW branch of the Australian and New Zealand Forensic Science Society.

She gives back to our discipline by teaching both Histology and Anatomical Pathology now for 28 years at the University of Technology Sydney, where she has contributed to the training and passing on of her knowledge, skills as well as her experience to up-and-coming scientists at both the undergraduate and postgraduate levels.

Her main work and research interests are in the histotechnological and histopathological diagnosis of muscle, nerve and brain pathologies.

She is a wife and mother to 3 adult children, a menagerie of animals: 3 cats, 3 dogs, a guinea pig, 3 axolotls, 2 snakes, 2 lizards, and tens of fish! She enjoys cooking and baking when she has time to relax as well as travel, dance and theatre.
Regulatory Affairs and the Regulation of In-House IVDs
- Andrew Ellis, Leica Biosystems

Abstract:
The increase in the regulation of IVD products reflects a higher level of confidence being demanded by the public. The move by the TGA to regulate the In-house IVDs comes after reports of in-house IVD test failures.

The move in Australia to regulate the supply of in-house IVD follows those in other countries such as the US FDA, Canada and the EU/UK.

The approach adopted by most regulatory authorities includes:

- A risk-based approach;
- Independent review prior to supply/use of high risk tests;
- A focus on analytical and clinical validity as the basis for test approval;
- Postmarket surveillance and adverse event reporting;
- Laboratory quality system;
- Public availability of test performance information.

These requirements for in-house IVD producers are similar to commercial IVD manufacturers.

This presentation provides a summary of the risk based classification system and a comparison, by test classification, of the requirements and cost associated with both in-house and commercial IVDs

Bio:

Andrew Ellis is a Senior Regulatory Affairs Specialist

He has a Bachelor degree in Mechanical Engineering (Melbourne University) and a Masters in Biomedical Engineering (NSW University)

He has worked in the IVD and Medical Device field for 30 years:

Therapeutic Good Administration 1986-1988
Telectronics Pty Ltd 1990-1995
MediReg Pty Ltd 1995-1998
CSL Ltd 1998-2001
Norwood Abey Pty Ltd 2001-2002
Leica Biosystems 2002-2018

His current responsibilities at Leica Biosystems include working with regulatory authorities in multiple countries globally to register IVD products.

The Future of Surgical Cutup Scientist
-Grant Taggart, senior Scientist, Douglass Hanly Moir Pathology

In his talk, Grant will take us through the evolution of scientists performing cut up. From the early days assisting pathologists, to the present growth in ‘surgical scientists’; Grant will outline a possible future where scientists dominate the surgical cut up.

There have been lots of changes over many years but the last five have been the most significant.

Necessity has championed the use of scientists in the surgical cut-up at DHM and many other labs and has also outlined the challenges in achieving the level of competency required to perform this role.

Will surgical cut-up become the new domain of scientists and, if so, how will we provide them with the skill-set needed without placing the entire burden of training on the laboratory?

This question will form part of the discussion that follows round table next

Bio:

Grant Taggart served as Department Manager and currently is the Senior Clinical Scientist in Anatomical Pathology Department at Douglass Hanly Moir Pathology. He has been working in pathology for over 50 years. Grant has been doing surgical cut up for a long time.

Round Table Discussion

Topic:

Surgical Cutup by Scientists

Will surgical cut-up become the new domain of scientists and, if so, how will we provide them with the skill-set needed without placing the entire burden of training on the laboratory?

The US has had Pathologists Assistants’ doing all of the surgical cut-up since the 1970’s. Are we on the verge of finally following suit here in Australia? If so, how do we provide the training and support for this burgeoning career? If not, what’s holding us back?

Key Participants:

Dr Fiona Maclean
Dr Esther Myint
Review of RCPA Quality Assurance Special Stain Results

Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP), Anatomical Pathology, St Leonards, Sydney, Australia

Special stains are performed routinely in the majority of Anatomical Pathology laboratories from centuries ago to assist pathologists with diagnosis. The RCPAQAP Anatomical Pathology provides a comprehensive technical proficiency module which includes a range of special staining exercises. Each year participants are provided with a different special staining exercise. Stained slides are submitted by participants which are then assessed by a Technical advisory committee. This presentation will provide an overview on special stain selection, the assessment process and highlight results from previous special stain surveys.

Neeta Nandani Lal
Scientist, Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP)

Neeta is a Scientist in Anatomical Pathology at the RCPAQAP. She holds a Bachelor of Science Degree, specializing in Anatomical Pathology. She joined the RCPAQAP in September 2014. She coordinates the assessments and reports for the Technical and Neuropathology Technical Survey Modules.

Prior to her role at RCPAQAP, her career includes appointments at University of Sydney and Concord Repatriation Hospital.

MOHS Surgery

- Walter Rhonda, Douglass Hanly Moir Pathology

Abstract:

MOHs micrographic surgery is considered the most effective surgical technique for treating basal cell carcinomas (BCCs) and squamous cell carcinomas (SCCs), two of the most common skin cancers diagnosed. The procedure is done in stages to ensure maximum normal tissue preservation whilst removing and clearing all margins of the lesion. This presentation will explore how and why MOHs Surgery is carried out and explain the role of a MOHs scientist in the procedure.

Bio:
Walter is currently a Histology/MOHs Scientist at Douglass Hanly Moir Pathology in Macquarie Park NSW. He began his career with the company 5 years ago since graduating from Macquarie University with a Bachelor of Science – Major in Human Biology. He is responsible for attending all offsite frozen sections accompanying a pathologist and is the MOHs Scientist for Dr Yiasevides at Southern Dermatology which currently runs on a fortnightly basis. He has also done MOHs at the Skin and Cancer Foundation both at Darlinghurst and Westmead and also for Dr Kearney at Bondi Junction.

Preparing an IHC Stain – From SIMPLE to Complex

- Enisa Hasic, Hospital Scientist, Prince of Wales Hospital

Abstract:

Diagnosing diseases such as cancer today involves more than just the routine morphological assessment of tissues. Immunohistochemistry (IHC), utilising antigen-antibody reactions to detect and analyse the presence and distribution of specific antigens, gives additional, more detailed analyses.

A simple process when first utilised in the 1940s, a series of advancements through the next decades saw IHC included in ‘routine’ diagnosis. Now, with the development of automation, IHC is a powerful investigative tool.

In this presentation, I will discuss how we prepare single stains and sequential stains, and how, drawing inspiration from the technical advances, we implemented the use of a new procedure combining IHC with histology that allows for more exact evaluation.

Bio:

Enisa Hasic graduated from New South Wales University with a Bachelor of Science (Microbiology), however, her working life has focused on immunology, both research and clinical.

Her first job was as Hospital Scientist at the Kanematsu Research Institute, Sydney Hospital, and a 16-month stint in melanoma research with Dr Peter Hersey, Clinical Immunologist.

Her next employment was as Hospital Scientist in charge of the Immunohistochemistry laboratory at the Department of Eye Pathology, Sydney Eye Hospital, a role she relished for 15 years under the expertise of Dr Marijan Filipic, Director of Eye Pathology.

When the department amalgamated with the Department of Anatomical Pathology at Prince of Wales Hospital, Enisa transferred to the new site. Today, she is Hospital Scientist in charge of the Immunohistochemistry laboratory there, performing tests for clinical and research applications.

Enisa is also Honorary Research Associate at the Save Sight Institute, where her long association with ophthalmic pathology and expertise in immunohistochemistry make her a valuable member of the Ophthalmic Pathology Research Group.
Histology Quiz
-Grant Taggart & Bill Sinai

All Creatures Great and Small, Understanding Comparative Pathology
-Dr Melinda Gabor  BSC (Vet), BVSc, PhD, Diplomate ACVP
  Director Science & Research Policy, Department of Primary Industries

Abstract:

Veterinary pathology is a challenging and rich discipline requiring training and expertise in the diseases of a broad array of animal species on land, in water and in the skies. Understanding the general mechanisms that govern disease pathogenesis and creates pathological change combined with a strong knowledge of normal histology is the essential tool that forms the foundation for a comparative pathology mind-set. Such a mind-set enables the ability to recognise similarities and differences in cellular structure, organisation and function across the animal kingdom to support an understanding of pathogenesis and disease diagnosis. It requires a flexible approach with skills in pattern recognition and processing of visual information.

This presentation will describe the training and skills required to embark on a career as a Veterinary Pathologist, in particular developing the comparative pathology mind-set. It will then describe in detail an experimental study in an invertebrate specie (the garden snail) to illustrate the application of comparative pathology mind-set and how this can be used to develop an understanding of disease pathogenesis.

Bio:

Dr Melinda Gabor was the Principal Veterinary Pathologist and Director Laboratory Services at the Elizabeth Macarthur Agricultural Institute and most recently the Director Science & Research Policy in the Chief Scientist Branch, NSW Department of Primary Industries. She is a diplomate of the American College of Veterinary Pathologists, a member of the Australian and New Zealand College of Veterinary Scientists (Pathology) and has significant experience and diagnostic capabilities as a specialist veterinary pathologist with a wide understanding of the technical dimensions of livestock, companion and aquatic animal health. She has been involved in the diagnosis and management of a number of exotic and emerging disease events in birds, oysters, fish and terrestrial animals in Australia. She has a strong focus on building partnerships nationally and internationally with scientists, diagnostic institutes, universities, industry and government stakeholders to support collaboration and a joint approach to disease diagnosis. During her time leading NSW DPI Laboratory Services she established an internal, integrated digital histopathology service with links externally to interstate and reference laboratory pathology teams.
She has a strong commitment to pathology training through an established and accredited residency program and maintains strong collaborative ties with the University of Sydney as an Adjunct Associate Professor, Faculty of Veterinary Science and with Taronga Park Zoo through collaborative projects and student placements. She is the current President of the Australian Society for Veterinary Pathologists and has been commissioned to provide pathology descriptions for the National Registry of Domestic Animal Pathology through Animal Health Australia.