Volume 58 / April 16th, 2022

TISSUEPAPER

Histotechnology Group of Queensland

President's Report- Mark Bromley

As the middle of autumn approaches, I welcome you to our first 2022 edition of TissuePaper.

So, in the President's Report in the December edition towards the end of last year, I mentioned how we were once again feeling that the soon to be new year can't possibly be as bad as the last one. We did it in 2020, and along came 2021 and proved that it was entirely capable of biting us on the proverbial. I should have learned then! Sure, as double vaccinations sailed over 90% and restrictions started falling away, everything was looking rosy. And then came the rain. And the rain. And the rain! So first of all, may I, on behalf of the whole HGQ committee, offer our heartfelt condolences for all those in histoland affected by the extraordinary rain events during the last few months. I know that people we work with have houses that were flooded, and possessions lost. Labs we work in were also affected, not to mention the logistic disruptions to the transport networks. And yet, we all carried on, gallbladders were grossed, prostates were processed, ears were embedded and skins were sectioned. Patients still got the care they are used to, and every one of us can be proud of that.

I would also like to take a moment to reflect on the awful situation in Ukraine. Quite apart from the violence and brutality of war, which has already had a huge effect on so many lives, one can only imagine the microtomes sitting idle in labs all over the country, abandoned by people fleeing for their lives. We spare a thought for all in Ukraine, and those mercifully outside of it



but still affected by the hostilities, but we spare a special thought for Ukrainian histologists, histotechnologists

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Frieda Carson

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Save The Date

News From TAFE QLD

and pathologists, as well as all of the patients whose prognoses will unfortunately be worse off when they do eventually get the medical care we in Australia are so lucky to expect every day.

2022 has had a few highlights, however. The Normanby Hotel hosted our first scientific meeting. Dr Luke Vasanthakumar gave us a great presentation entitled Molecular Involvement in Lung Cancers, followed up excellently by Dr Jack Garland and his insights into the world of Forensic Pathology.

For the diary is the upcoming scientific meeting and lab tour of the Mater Hospital histology lab on May 19th, where Dr Rohan Lourie will talk to us about p53. And June 24th is the date for the trivia night, again at the Normanby Hotel. Also a big one for you diaries- The Cairns conference is on! Save the date 7th- 9th October 2022.

So until the next edition, stay dry and keep the 'tomes turning!

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Freida Carson 2/12/1926 – 11/1/2022

Frieda Carson, author of Histology: A Self-Instructional Text, died this year on the 11th of January.

Dr Freida Carson was born Texas on December 2, 1926 to J.A. and Erna

J. Carson.

She graduated from Hearne High School and received her B.S. from TSCW. She became Director of the Histopathology Laboratory at Baylor Hospital and earned her MS and PhD from Baylor University.

Her career advanced histology in innumerable ways.

Dr Carson was Director of one of the first eleven Schools of Histologic Technique to receive national accreditation, and she continued to teach histology for entire career.

In addition to her excellent book, she authored numerous articles in histologic methods.

She served with the American Society for Clinical Pathology, was part of those who began the Histology Quality Improvement Program and lectured in her field all across the world

Dr Carson was recognized as a Distinguished Alumnae by TWU, earned various awards including (but not limited to):

- The JB McCormick, MD award in 1983
- Technologists of the year in 1991 by the American Society of Clinical Pathologists
- The Histotechnologists of the Decade award in 2000
- The ASCP Mastership Award in 2010.
- The histology department at Baylor University Medical Center, part of Baylor Scott & White Health, was dedicated to her at the end of 2021.
- A memorial service was held on Thursday, January 20th at Our Redeemer Lutheran Church in Texas and she was interned at Norwood Cemetery in Hearne, Texas.

Histology: A Self Instructional Text was first published in 1980 and is now in its 5th edition (ISBN: 978-0891895817). It is recommended reading for anyone in our profession.



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Future events:

Date: 19th May, 6.30pm

Scientific Meeting, Laboratory tour and presentation

Topic: You, me and P53! **Venue**: Mater Pathology RSVP: www.hgq.org.au

Date: 24th June

Trivia

Venue: The Normanby Hotel, 1 Musgrave Road, Red Hill

Date: 18th August AIMS Joint Meeting

Venue: TBA

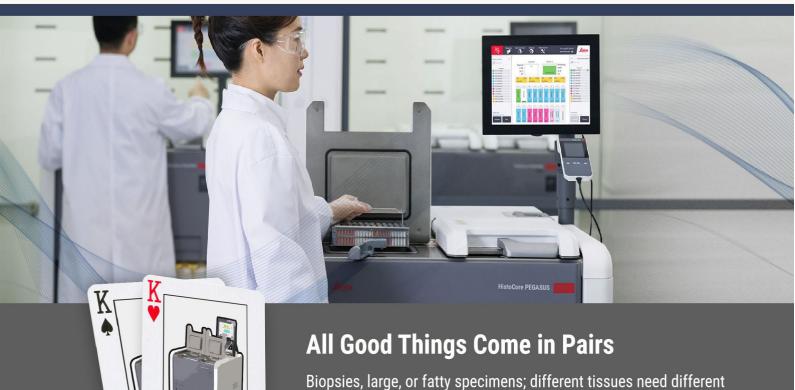
Date: 7th – 9th Oct

Queensland State Histology Conference and HGQ AGM

Venue: Pullman Reef Hotel Casino, Cairns

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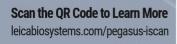
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March 10th is an important day in the pathology calendar being Histotechnology Professionals Day. This day is an annual awareness day aimed at raising awareness of the wonderful world of Histotechnology – the creation of a slide from a tissue sample received in the laboratory. A world involving many people from doctors, surgeons, pathologists and of course, those in the laboratory involved in all facets of Histotechnology.

Do not forgot to mark it in your calendar for next year. Host a morning tea and take some photos in your laboratory and share with the HGQ and remember we are all part of a unique and crucial department within pathology. The photos below feature professionals from Royal Brisbane Hospital in what can only be described as living their best life at work in histology. Get in touch with the HGQ if you would like to feature your team in the next issue.













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Showing the right path

Fibromuscular Dysplasia

By Tania Chiesa

Fibromuscular Dysplasia (FMD) is a non-atherosclerotic, non-inflammatory arterial disease³ that causes stenosis and dilation of the arterial walls of small and medium sized arteries. This occurs as a result of dysplasia, abnormal changes of fibrous tissue within the layers of the arterial wall. Renal and cerebrovascular arteries are the most commonly affected¹. FMD has only recently been categorised a separate disease due to the similar clinical presentation to atherosclerosis.

FMD can be categorised by the radiographic and histological appearance. Traditionally, FMD was characterised based on the histological appearance of the arterial wall and which layer was affected. However, this method is invasive and is only utilised after surgical intervention.

Radiographic Appearance

Modalities such as Duplex Ultrasonography, Computer Tomography Angiography, Magnetic Resonance Angiography and Arteriography are routinely used to form a diagnosis⁴. Radiographic appearance provides a rapid

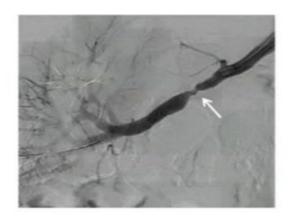


Figure 1. Angiogram of focal FMD in the right renal artery⁵.

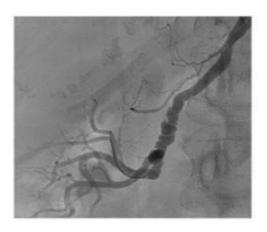


Figure 2. Angiogram of multifocal FMD in the right renal artery⁵.

diagnosis due to its non-invasive nature and the benefit of providing high quality images to visualise the effected vessel. These modalities can also identify areas of turbulence and calculate the pressure gradient across lesions.

Once the possibility of atherosclerosis and inflammatory vascular diseases (e.g. Vasculitis) are eliminated, FMD can be classified into two categories: focal and multifocal. In this example CT arteriogram with contrast dye is used to detect the angiographic appearance. FMD can present as either focal (Figure 1) or multifocal (Figure 2). Focal FMD as the name suggests, occurs in one segment (arrow) of the affected artery. The typical appearance of a multifocal FMD is described as a "string of beads" due to arterial stenosis followed by arterial dilation in an alternating pattern⁴.

Histological Appearance

Traditionally, FMD can be categorised into three subtypes Medial FMD, Intimal FMD and Adventitial FMD⁶ based on the arterial wall most effected. Although it is important to note that any layer within the arterial wall can be affected and the different subtypes can exist at the same time.

Medial FMD

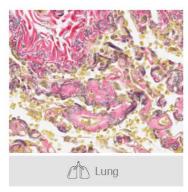
Is the most common presentation identified by alternating ridges of collagen and loss of elastic membrane with preserved internal

elastic lamina⁶ as seen in Figure 3. Medial FMD presents as multifocal FMD radiographical



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^{*} For the entire list of tissue validated, refer to the method sheet.

Intimal FMD

Appears histologically as irregular deposits of collagen within the intima causing a fragmented internal elastic lamina⁶. This appears radiographically as concentric smooth stenosis.

Adventitial FMD

Is caused by dense deposits of collagen within the adventitia which appears as a smooth stenosis radiographically⁶.

Aetiology

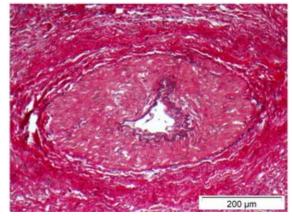


Figure 3. Severe thickening of the tunica media of the sinus node artery (elastica—Domagk stain)⁹.

It is still unknown as to what triggers the irregular growth of cells to initiate the onset of FMD⁸. Although it is believed to have both a genetic and environmental component. Multiple studies (REF) have proven smoking tobacco is associated with renal FMD. However, this has not been replicated for cerebrovascular FMD. Due to cerebrovascular FMD typically being asymptomatic and therefore remaining undiagnosed it is difficult to repeat studies with current data in both FMD presentations.

A genetic association study conducted by Di Monaco et al. in 1154 patients with (predominantly renal artery) FMD and 3895 controls of European ancestry identified that the phosphatase

and actin regulator 1 gene (PHACTR1) present in approximately 60% of the population was associated with a 40% increase in risk of FMD². Results indicated that PHACTR1 may influence the transcription factor of endothelin-1 gene which encodes for a potent vasoconstrictor.

Clinical Manifestations

Clinical manifestations in a patient may differ depending on the vasculature affected. FMD can also remain asymptomatic and often undiagnosed. Most undiagnosed cases experience headaches and no further exacerbations. Typical symptoms experienced are dizziness, headache, pulsatile tinnitus, cervical bruit and neck pain due to hypertension⁷. More severe consequences that may develop include; aneurysm, arterial dissections, subarachnoid haemorrhage, ischaemic stroke, haemorrhagic stroke, mesenteric ischemia, renal infarction and renal atrophy.

FMD has only recently been classified as a cardiovascular disease. More investigation is needed to understand genetic factors associated with the development of FMD and possible methods of inheritance in order to calculate risk of development in patients and assess preventative measures.

References

1. Bolen M, Brinza E, Renapurkar R, Kim E, Gornik H. 2017, Screening CT Angiography of the Aorta, Visceral Branch Vessels, and Pelvic Arteries in Fibromuscular Dysplasia, JACC: Cardiovascular Imaging, vol. 10, no.5, 554-561, viewed 12 March 2022. DOI: https://doi.org/10.1016/j.jcmg.2016.04.010

- 2. Di Monaco S, Georges A, Lengelé J, Vikkula M, Persu A. 2018, Genomics of Fibromuscular Dysplasia, International Journal of Molecular Sciences, vol. 19, no. 5, 1526, viewed 13 March 2022. DOI: doi.org/10.3390/ijms19051526
- 3. Gornik H, Persu A, Adlam D, Aparicio L, Azizi M, Boulanger M et al. 2019, First International Consensus on the diagnosis and management of fibromuscular dysplasia, Vascular Medicine, vol. 24, no. 2, 164-189, viewed 11 March 2022, DOI: 10.1177/1358863X18821816
- 4. Khoury M, Gornik H. 2017, Fibromuscular dysplasia (FMD), Vascular Medicine, vol. 22, no. 3, 248-252, viewed 11 March 2022. DOI:https://doi.org/10.1177%2F1358863X17700716
- 5. Narula N, Kadian-Dodov D, Olin J. 2018, Fibromuscular Dysplasia: Contemporary Concepts and Future Directions, Progress in Cardiovascular Diseases, vol. 60, no. 6, 580-585, viewed 12 March 2022. DOI: 10.1016/j.pcad.2018.03.001.
- 6. Olin J, Froehlich J, Gu X, Bacharach J, Eagle K, Gray B et al. 2012, The United States Registry for Fibromuscular Dysplasia, Circulation, vol. 125, no. 25, 3182-3190, viewed 13March 2022. DOI: 10.1161/CIRCULATIONAHA.112.091223
- 7. Touzé E, Southerland A, Boulanger M, Labeyrie P, Azizi M, Bouatia-Naji N et al. 2019, Fibromuscular Dysplasia and Its Neurologic Manifestations, JAMA Neurology, vol. 76, no. 2, 217, viewed 12 March 2022, DOI: doi:10.1001/jamaneurol.2018.2848.
- 8. Warchol-Celinska E, Prejbisz A, Dobrowolski P, Klisiewicz A, Kadziela J, Florczak E et al. 2020, Systematic and Multidisciplinary Evaluation of Fibromuscular Dysplasia Patients Reveals High Prevalence of Previously Undetected Fibromuscular Dysplasia Lesions and Affects Clinical Decisions, Hypertension, vol. 75, no.4,1102-1109, viewed 12 March 2022. DOI: https://doi.org/10.1161/HYPERTENSIONAHA.119.13239
- 9. Zack F, Kutter G, Blaas V, Rodewald A, Büttner A. Fibromuscular dysplasia of cardiac conduction system arteries in traumatic and nonnatural sudden death victims aged 0 to 40 years: a histological analysis of 100 cases. Cardiovascular Pathology. 2014;23(1):12-16.

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Fibromuscular Dysplasia Word Search

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News from TAFE Queensland



Promising Histotechnician Award 2021

Following on from the success of the alliance between the HGQ and TAFE Queensland, the second annual award for the 'Promising Histotechnican Award' was awarded to a Diploma student graduating mid-year.

In 2021 student Ken Law won the coveted prize, with Sharee Durdin presenting the award at graduation on behalf of the HGQ. Ken stepped away from the bench at the Mater to answer a few questions:



Figure 1: Ken Law and Sharee Durdin at the Applied Science graduation - yes notice the masks.

When did you start at TAFE Queensland?

I started TAFE in 2020 completing the Certificate
IV in Laboratory Techniques and continuing in
2021 completed a Diploma of Laboratory
Technology.

Your favourite thing/s about the histology unit?

My favourite thing about the histology unit isn't a specific aspect, but rather I am appreciative of learning all the histological procedures. This provided greater context and understanding of the diagnostic process. Apart from the typical histological processes, I am most appreciative in learning the maintenance aspect of the tissue processor, autostainer and embedder, as this would otherwise be an overlooked aspect of real-

world duties in a histological role.

Most challenging (this could be of the entire course and or histology)

Besides studying in the backdrop of a pandemic, studying microbiology, or biology in general, was the most challenging. The subject has a very large knowledge base, but there is so much that is still not understood or discovered. I think this duality exemplifies the sheer complexity of life sciences.

Where are you working now?

I'm currently working as a clinical assistant for
Central Specimen Reception at the Princess
Alexandra Hospital. As part of Central Specimen
Reception, I am responsible for the receipting and
processing of specimens from within the hospital
and from external sites, such as collection centres
and government facilities, and distributing the
specimens to the appropriate laboratory
department within the hospital. I am also
responsible for sending and receiving specimens to
and from other testing laboratories.

Any plans or future study you wish to share

I don't currently have any plans for future study. However, with the dynamic nature of many workplace environments and implementation of emergent technologies there is always a need for continual development.



Figure 2: Ken working at the hospital

Pathology Students

In other news the HLT37415 Certificate III in Pathology Assistance course now includes the histology unit (MSL973020 Perform histological procedures). In this unit students are introduced to the multistep process of creating slides. The unit of competency focuses on embedding, microtomy staining and cover-slipping and to be satisfactory, students must complete all practicals to a standard provided by www.training.gov.au with at least three different tissue types.

Keep an eye out for these students in the future as they may be in a laboratory near you during their vocational placements and employment.

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