HGVT

Org. No. A003523F

PARAFFINALIA NEWSLETTER

VOLUME 24, NUMBER 3
September 2019

The HGVT aims to provide a dynamic continuing education program in which all persons with an interest in Histology and Histotechnology are freely invited to participate.

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Committee Page

The members of the Histology Group of Victoria 2019 are:

Name	Institution
Samantha Arandelovic	Mater Health
Adrian Warmington	
Mark Bromley	Sullivan Nicolaides Pathology
Elizabeth Baranyai	Cabrini Health
Kellie Madigan	Leica Biosystems
Alison Boyd	St. Vincent's Pathology
Kellie Vukovic	Sullivan Nicolaides Pathology
Sue Sturrock	Melbourne Pathology
Kerrie Scott-Dowell	Dorevitch Pathology/Leica
Darcee McNair	Clinicallabs (Geelong)
Emma Pan	Walter & Eliza Hall Institute
Alistair Townsend	Royal Hobart Hospital
Sukwinder Sohal(Romi)	University of Tasmania
Meghan Leo	Histolab
Bindi Bates	Peter Mac

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Articles & Reports:
Author enquiries and readers wishing to contribute articles or reports can contact the Editor - editor@hgv.org.au

Please email articles (preferably Microsoft Word format) for inclusion in the next edition to editor@hgv.org.au All items submitted for publication will then become the sole property of the Histology Group of Victoria Inc.

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Blurb from Brissie!

Welcome Spring and Happy Father's day! The weather in Brisbane is warm and sunny with top of 27 degrees today.

Another successful Trivia Night with the largest turn out so far of 124 people – thank you all for your continued support for this event and thank you to the Trade companies who also continue to support both with sponsorship, but also by participating on the night. Well done to Monash!

On behalf of the HGVT committee I would like to thank Kellie Madigan who initially joined in 2010 and after taking a short break re joined us again in 2015 and has given us four years of her time and expertise. Kellie has taken on a bigger role in Leica, whilst we hope to see her back on the committee soon, we wish her all the best in the interim.

All states have been working hard to finalize the constitution of much anticipated Histology Group of Australia. The work began after the National Histology Conference in Adelaide and so far it's progressing well. Keep you updated.

The end of the year is fast approaching, and we still have two Scientific Meetings in Melbourne and to finish of the year our last Scientific meeting in Launceston in November. I look forward to seeing you all there.

Samantha Arandelovic

HGVT President

VENTANA DP 200 slide scanner

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VENTANA DP 200 slide scanner features

- **High-speed scanning:** improved scanning speed at 20x and 40x magnifications
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- **High-quality images:** outstanding images for various tissue types, including challenging slides and frozen sections
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Focus method	Dynamic focus
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Time to view*	20x: < 49 seconds, 40x: < 85 seconds for a 15mm x 15mm AOI
Scan time	20x: approximately 36 seconds, 40x: approximately 73 seconds for a 15 × 15mm AOI
Slide handling	No slide handling, tray-based movement
Objective	Nikon CFI PLAN APO LAMBDA 20x
Dimensions / weight	49.78cm x 67.82cm x 46.23cm / < 48 kg
Calibration	Auto-calibration

*Time to view includes tray loading, thumbnailing and image acquisition.

VENTANA DP 200 slide scanner is for *in-vitro* diagnostic use.

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Under the Microscope with Bindi Bates

1. What was your first part-time job?
Working at Coles in a bakery department.

2. How long have you worked in histology?
6 years

3. When people ask, “So, what do you do?” How do you explain Histology?”
We help pathologists and other doctors diagnose patient disease and cancers by cutting up patient samples that come into the lab and perform specific tests on the samples

4. What is a skill you’d like to learn and why?
Speak Spanish because why not? I’ll just add that to the list of things to accomplish before I die.

5. If money was no object, what would you do all day?
Travel, explore, relax and experience life and how others around the world live. I want to learn about their culture.

6. If you could witness any event of the past, present or future, what would it be?
Future- I want to witness when they finally find another life other than the life on earth.

7. Who do you most admire in life?
My mum- she’s a power house of a women who has taught me everything in life.

8. What is the best conference you have ever attended?
I enjoyed tassie’s conference in Hobart last year

9. What’s on your bucket list?
Travel to Austria and finish exploring the eastern side of Europe

10. What is your dream holiday destination and why?
Utah in USA! After traveling there in 2016 I have been desperate to go back to finish exploring all the nation parks

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Introducing .. .. ..

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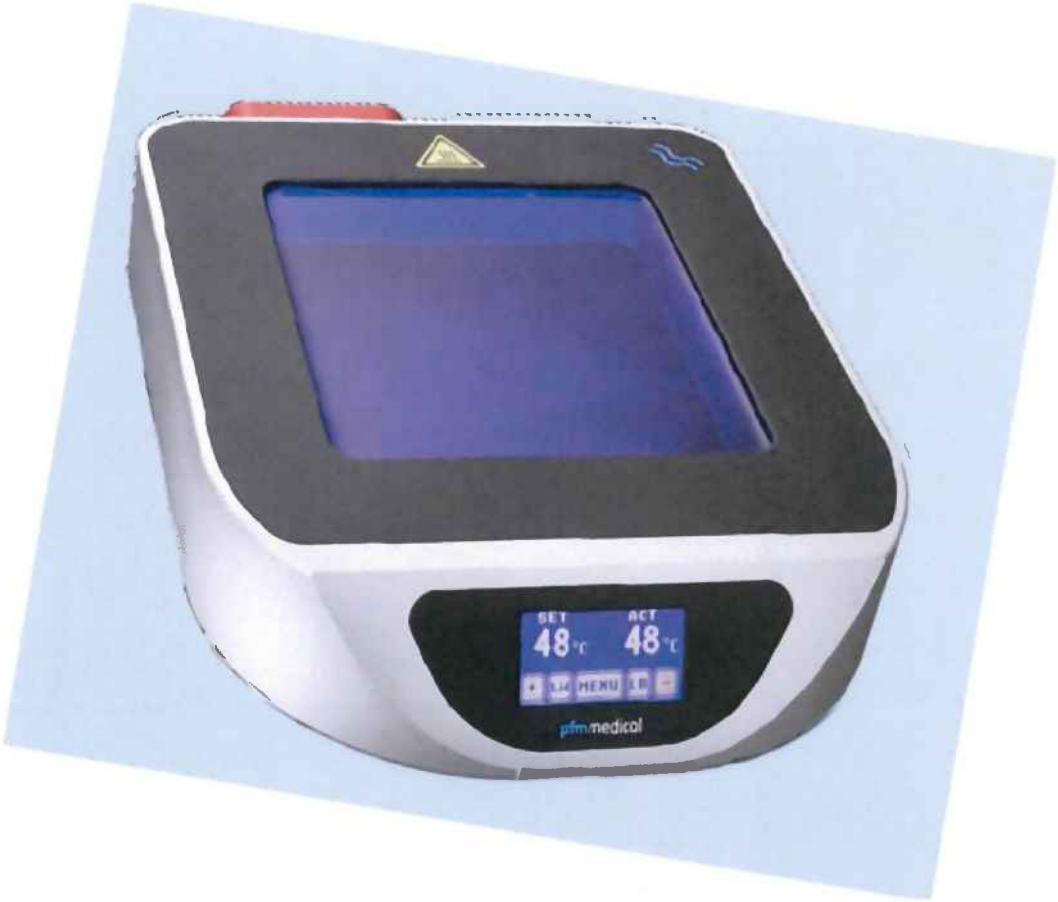

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Quality and Experience

Queenstown, New Zealand! Could there have been a more idyllic venue for a conference. The majestic mountains bearing abundant winter snow and bathed in the afternoon sunlight and surrounding the pristine waters of Lake Wakatipu promise not only an exceptional educational experience but one that will relax the mind and revitalize the spirit. If you have not ventured to Queenstown, it must be added to the bucket list for its beauty and being the adventure capital of New Zealand.

The conference welcome reception was on Thursday evening. This was a chance to mingle with people from around the globe; USA, Canada, Ireland, Australia, and from a variety of backgrounds; Medicine, research, pathology, IT and trade. Canapés, drinks and a lone pianist made for a low key and laid back affair.

The agenda began on Friday morning and progressed through to Saturday lunch. Around 100 registrants filled a conference room with bay windows looking over the aforementioned vista, making for a significant distraction, yet the presentations without exception held your attention throughout. Breaks throughout the day however meant another photo opportunity as the glorious Friday weather showed the changing landscape as the sun moved across the horizon plunging different peaks into shadow and light. The topics were centred on the technological advances that would play a significant role in the future for pathological diagnosis. In particular the use of artificial intelligence (AI) and where this would will affect diagnosis, turn around and reliance on laboratory and medical professionals. The expertise that was assembled to present was exceptional. Representing a truly international array of speakers and all presented expertly in their chosen fields. Initially I was wary that this would be aimed specifically at the pathologist level, however it was soon apparent, that not only where many of the speakers not pathologists, but that the topics enlightened delegates no matter their background be medical, scientific or IT.

The Friday evening hosted a formal dinner. This was opened by the local Maori dancers and traditional war cry, welcoming us all to the land. The evening was perhaps not as energetic as a National Histology conference, but nonetheless enabled enjoyment of local food, drinks and another opportunity to connect with a range of delegates.

The weather on Saturday was not nearly as clear. Light rain and mist covered the once glorious peaks, and showed what winter can present. The presentations began with an exhilarating talk from Mark Inglis. I cannot do justice to the experiences and life that this man has had. This double amputee as a result of being trapped atop the mountains of New Zealand for 13 days and who has since conquered Mt Cook and Everest after winning a silver medal at the Para Olympics in cycling had the audience in the palm of his hand. I urge you to look his story up if you are not familiar with it. Mark would be an excellent addition to any National Histology program on so many levels. Oh he happens to have studied science and done research.

The conference ended with another lovely lunch before some delegates made use of the area to go skiing, and others took an included tour of the lake and enjoyed a farm experience with local BBQ. I travelled north-west to enjoy the landscape in all its glory and explore the small town of Glenorchy before departing back to Australia. The conference is held every year and oscillates between our region and the UK region. The conference next year is in Newcastle, Northern Ireland, in September. It might be hard to justify a 1.5 days of presentations in the northern hemisphere, but I would thoroughly recommend waiting until 2021 when it will be back in our region. It is boutique, but the quality of presentations and the focus on current technology and where pathology is heading was exemplar.

Adrian Warmington
Histology Group of Victoria and Tasmania

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Ever wonder who has represented the Histology Group of Victoria and Tasmania. This Honour Board is on our website. There are many that have served in the groups best interest. Some for a short time and others for longer. Now is the time to consider putting your hand up. Fill in the nomination form within the newsletter, or start by just contacting a committee member to find out more.

Histology Group of Victoria and Tasmania Incorporated Honour Board

Incorporated 6th August 1997 - First incorporated committee elected 19th March 1998

Name changed to include Tasmania 7th December 2018

President

Tristan Roberts	1996-1999
Judy Brincat	1999-2007
Adrian Warmington	2007-2016
Mark Bromley	2016-2017
Kellie Madigan	2017-2018
Samantha Arandelovic	2018-

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Aldo Anile	1999-2002
Position Discontinued	

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Neil O'Callaghan	1999-2008
Judy Brincat	2008-2013
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Elizabeth Baranyai	2016-2017
Mark Bromley	2017-

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Piero Nelva	2003-2006
Adrian Warmington	2006-2007
Unfilled	2007-2016
Adrian Warmington	2016-

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Judy Brincat	1996-1999
	2007-2008
Dominique McKenzie	1996-1997
Toni Harris	1996-1998
Clare Christian	1996-2001
Irene Giouzeppos	1996-2000
Piero Nelva	1998-2003
Mike Rentsch	1998-1999
Clyde Riley	1998-1999
	2003-2005
Ruth Wilkinson	1998-1999
Jane Witte	1998-2005
Gordana Grubacevic	1999-2001
Naomi Jarman	1999-2001
Izabell Jelonek	1999-2000
Alex Laslowski	1999-2007
John Mills	1999-2002
Tristan Roberts	1999-2000
Sue Sturrock	1999-2002
	2013-
Abi McDonald	2001-2004
Darlene Sen	2001-2006
Ken Thompson	2001-2004
Adrian Warmington	2001-2006
Aldo Anile	2002-2008
Bronwyn Christianson	2002-2003
Jane Ellis	2002-2004
Jackie Martin	2002-2005
Carly Price	2002-2004
Cath Reynolds	2002-2004
Erryn Tolley	2002-2006
Eileen Tan	2003-2004
Giao Tran	2004-2007
Alison Boyd	2005-2011
	2012-
Maria Chavez	2005-2013
Simon Davies	2006-2009

Committee

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	2008-2013
Sue Campfield	2006-2008
Nguyen-Hoang Nguyen	2006-2013
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Natalie Siebrand	2006-2007
Cameron Skehan	2007-2010
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Elizabeth Baranyai	2008-2016
	2017-
Michelle Zammit	2008-2013
Neil O'Callaghan	2008-2009
Raelene Houwen	2009-2010
	2013-2014
Kellie Madigan	2010-2011
	2015-2017
	2018-2019
Kristy De George	2010-2016
Rebecca Forrester	2011-2012
Rosemary Savino	2011-2014
Kellie Vukovic	2011-
Samantha Arandelovic	2012-2018
Aysha Yang Du	2013-2014
	2015-2016
Jesenka Jefic	2013-2016
Tania Marsden	2013-2015
Kerrie Scott-Dowell	2013-
Alistair Townsend	2013-2014
	2015-2017
	2018-
James Cvetkovski	2014-2016
Meghan Leo	2014-
Yuyin Hoang	2015-2016
Maria Flynn	2015-2016
Darcee McNair	2017-
Emma Pan	2017-
Sukwinder Sohal	2018-
Bindi Bates	2018-

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Irene Giouzeppos	1996-1998
Piero Nelva	1999-2000
Alex Laslowski	2000-2007
Neil O'Callaghan	2007-2009
Elizabeth Baranyai	2010-2016
Kerrie Scott	2016-

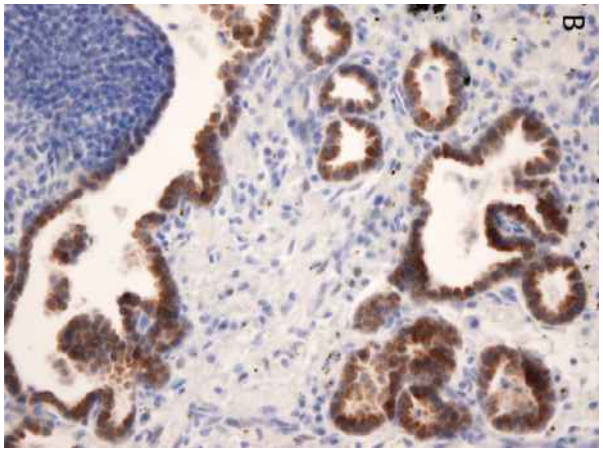
Long Service

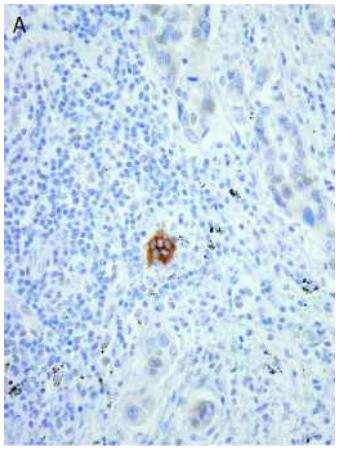
	Years	
Adrian Warmington	18	**Life Member**
Judy Brincat	17	**Life Member**
Alison Boyd	13	**Life Member**
Sue Sturrock	12	**Life Member**
Mark Bromley	12	**Life Member**
Elizabeth Baranyai	11	**Life Member**
Neil O'Callaghan	10	**Life Member**
Aldo Anile	9	
Kellie Vukovic	8	
Piero Nelva	8	
Maria Chavez	8	
Alex Laslowski	8	
Samantha Arandelovic	7	
Nguyen-Hoang Nguyen	7	
Jane Witte	7	
Clyde Riley	7	
Kerrie Scott-Dowell	6	
Sean Phefley	6	
John Mills	6	
Kristy De George	6	
Kellie Madigan	5	
Meghan Leo	5	

IHC Stain of the Month

September 2019

Darcee McNair





ROS1

Species	Rabbit Monoclonal
Antigen	ROS1
Isotype	IgG
Positive control	• NSCL ROS+
Localization	Cytoplasmic
Clinical Application	• Enable targeted treatment options for patients with NSCLC and known ROS1 gene rearrangement positivity

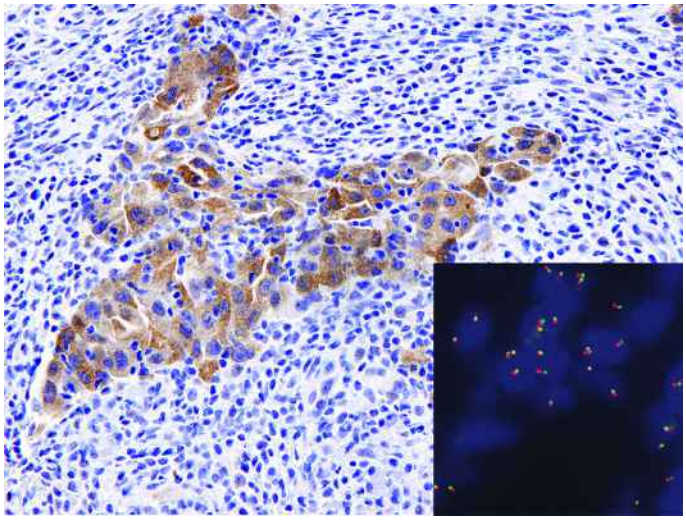
The protein encoded by the ROS1 gene is a type I integral membrane protein with tyrosine kinase activity with structural similarity to the anaplastic lymphoma kinase (ALK) protein. Elevated ROS1 protein expression in tumour cells may indicate the presence of a ROS1 gene rearrangement.

Gene rearrangements involving this gene were first detected in glioblastoma tumours and cell lines. It was then later identified in a cell line derived from a lung adenocarcinoma patient. While ROS1 is undetectable in the normal lung, studies have demonstrated ROS1 positivity in 1-2% of NSCLC by FISH. Recent reports have presented a strong correlation between ROS1 IHC with FISH positivity. ROS1 positive lung tumours are predominantly seen in younger, non-smoking individuals.

Clinical trials are increasingly investigating the response of cancers involving ROS1 rearrangement. Not only is it commonly seen in lung cancers, it also demonstrates positivity in other tumours such as:

- Cholangiocarcinoma
- Ovarian cancer
- Gastric adenocarcinoma
- Colorectal cancer
- Agiosarcoma
- Epitheloid hemangioendothelioma

ROS1 gene rearrangements are associated with higher response rates to therapies including crizotinib.



References:

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Nomination Form
Histology Group of Victoria and Tasmania Committee

Due Date 24th October, 2019

Name:_____

Institution of employment:_____

Email Address:_____

Position Nominated For: (Please tick box)
□ President □ Treasurer
□ Secretary □ Committee Member

Nominations must have the consent of the nominee

Signature of Nominee:_____

Nominations must be returned at least 7 days prior to the date of the Annual General Meeting.

Please scan and email nomination form to secretary@hgvt.org.au

2019 Trivia Night Review

By Kellie Vukovic

The 2019 Trivia night held on Friday 19th July at The Metropolitan Hotel was a huge success with a record breaking number of people attending. This was our biggest turn out in many years with 124 people competing for the major prize. There was good food, friendly staff, an entertaining host, movie tickets, wine, chocolates and of course the inaugural wax covered trophy.

We decided to run the night a bit differently this year, to what we have done in the past, with cheese boards, hot chips and an endless supply of pizzas. This proved to be a popular choice amongst participants with no one leaving hungry at the end of the night.

Our host, David returned for another year of fun, adding in a couple of extra Trivia rounds. With 4 rounds plus a bonus Histology round, the night was extremely competitive. A big thank you to Michael Walsh from SNP in Brisbane for his contribution to the scientific round.

There was a bag of chocolates on the line at the end of each round plus the important points towards each teams' final score. The first round was won by a brand new team to the event from the Victorian Forensic Institute of Medicine. The Monash team proved unbeatable in the music rounds and The Alfred were ahead in the Histology bonus questions. With scores even, 2nd and 3rd was determined with a skull off – one person from the Alfred and VIFM was brought up the front and had to drink a glass of water the fastest. The representative from VIFM was impossible to beat!

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MEETING NOTICE & AGENDA
Histology Group of Victoria and Tasmania Incorporated
Annual General Meeting

The Histology Group of Victoria and Tasmania hereby provides notice of the 2018/2019 Annual General Meeting

Thursday 31st October, 2019 at 6:45pm

Peter MacCallum Cancer Centre
Level 7 Lecture Theatre B
VCCC Building
305 Grattan Street, Parkville

Meeting Open

1. **Minutes of previous AGM**
   Motion: To accept the minutes of AGM 15th November 2018

2. **President's Report**

3. **Financial Report**
   Motion: To accept the financial statements as presented

4. **Election of office bearers and committee**

5. **General Business**

Meeting Closed

The final results were:

RANKING	LAB	POINTS
1ST	Monash	63.5
2nd	Victorian Institute of Forensic Medicine	61
3rd	Alfred/Epredia	61
4th	Walter and Eliza Hall Institute	60
5th	Royal Children's/Roche	58
6th	RMIT	57.5
7th	Clinical Labs/Agilent	56.5
8th	St Vincent's	56.5
9th	Peter Mac	55.5
10th	AnatPath	54.5
11th	Melb Path/Leica	53
12th	St Vincent's/Trajan	46.5

We would like to say a big thank you to our generous sponsors because without their support a night like this couldn't happen – Leica, Agilent, Roche, Trajan and Epredia!

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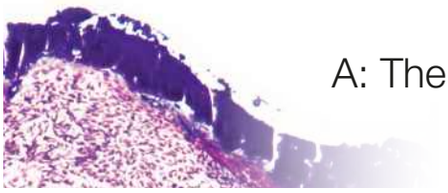
Q. Do you need a tissue marking dye that maintains intensity throughout your process?



A: The **Davidson Marking System®** (DMS) tissue marking dyes are the highest quality tissue dyes available, and are easily visible throughout histology processing

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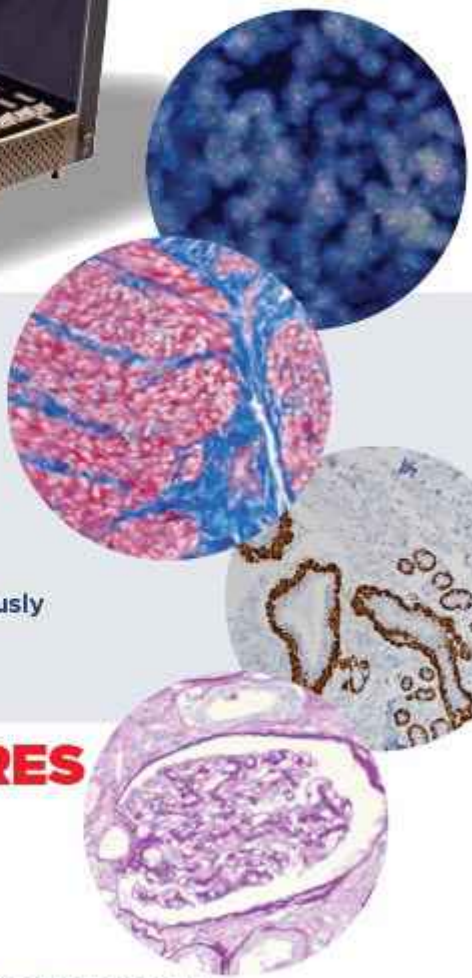

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- Simplified software interface
- Improved LIS patient traceability

Adopting digital pathology

Considerations for the anatomical pathology laboratory information system

Digital pathology encompasses the replacement of glass slides in the histology laboratory with digital slide images, as well as automated image analysis. Over the last decade, technological advances have led to improvements in digital slide scanner quality and a reduction in the cost of digital image storage. Because of this an increasing number of histology labs are now beginning to implement digital pathology to improve workflow efficiency and enable easier sharing of slides for collaboration or remote consultation.

The right IT capability

When considering how to transform and future-proof their practices for the introduction of digital pathology, lab managers and pathologists need to consider not only the slide scanners and other hardware required to ensure that digital slide images are suitable for clinical use, but also their supporting IT systems. The two main systems are the anatomical pathology laboratory information system (APLIS) and the digital pathology system (DPS). Most histology labs are already using an APLIS to manage the lab workflow and pathologist reporting. The DPS is required to manage the digital slide images, and usually offers features to support collaboration, case management and automated image analysis.

System integration

Key to the success of digital pathology implementation is integration between the APLIS and the DPS. This has been highlighted in reports by labs from a range of countries[1]. For example, a study from the Department of Pathology at the University Medical Center, Utrecht, The Netherlands, found that integration is needed to provide a better user experience[2], while the Department of Pathology at the University of Pittsburgh Medical Center, USA, concluded that the integration of the DPS and APLIS "streamlined [the] digital sign-out workflow, diminished the potential for human error related to matching slides, and improved the sign-out experience for pathologists"[3].

With integrated systems, communication via an interface is triggered by certain events in the workflow. For example, once slide preparation is completed in the APLIS, the interface passes patient, request and slide details to the DPS, where a new case is created. Then, once the corresponding slides have been scanned into the DPS, they are automatically associated with the correct case. Without integrated systems, lab staff would be required to re-enter the patient and case details into the DPS, introducing the risk of human error.

Likewise, updates to request or patient details in the APLIS should be automatically communicated to the DPS, ensuring that case information in each system is synchronised. This dynamic communication between the two systems also eliminates the need for duplicate data entry.

Key to the success of digital pathology implementation is integration between the APLIS and the DPS.

With digital pathology, the pathologist's reporting workflow is driven by cases assigned in APLIS, rather than slides on the workbench. When the pathologist opens a case to report in the APLIS, the digital pathology image viewer is automatically launched on a second screen. This means that the pathologist is presented with patient and request details from the APLIS on one screen, side by side with the corresponding slide images from the DPS on another screen. Without integrated systems pathologists would need to search the DPS to find the correct images for each patient case at the time of reporting.

Given the importance of system integration in the transition to digital pathology, labs need to ensure that their APLIS is capable of interfacing to their chosen DPS. Interoperability and the use of technology standards is essential to ensure that systems are compatible. HL7 v2.x is the most widely used standard for exchanging clinical data between different systems[4], so an interface designed using HL7 messaging provides a standardised and flexible platform. It is also important that the interface is bi-directional, to ensure systems remain synchronised.

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Specimen tracking and unique slide identification

Many labs are now introducing full specimen tracking systems into their APLIS to ensure that the patient's specimen, including every block and slide created for the case, is uniquely identified through barcode labelling and tracked throughout the lab workflow. This is an essential foundation for labs to have in place in their APLIS before the introduction of digital pathology[5]. Without unique, barcoded slide labels the DPS is not able to identify every image as a single entity that belongs to the patient case. It also means the pathologist can systematically review and track each slide for the case. The labelled slides must be of high quality to ensure accuracy of scanning and minimise barcode read error rates.

Regionalisation

When moving to digital pathology, laboratories may also be considering the benefits of regional consolidation to reduce duplication of resources and benefit from economies of scale. For example, specimens may be processed in a central laboratory, and the scanned slides made available to pathologists based in different locations across a geographical region. In this case it is important to ensure that the APLIS supports a multi-site environment, i.e. multiple laboratories operating from a single laboratory system.

Remote pathologist reporting

Going digital may also open the possibility of remote reporting. If supported by the DPS and APLIS, pathologists can connect remotely from any location to view digital slides and create reports, facilitating off-site consultation or more flexible work arrangements.

Conclusion

An increasing number of histology labs are moving towards the adoption of digital pathology. To fully realise the benefits of going digital, labs need to ensure they have the right platform in place in their APLIS. The ideal LIS should:

- enable unique slide identification, achieved through an APLIS specimen tracking system
- be capable of interfacing to the lab's chosen DPS to provide end-to-end synchronisation of both systems and eliminate duplicate data entry
- support a multi-site installation to allow pathologists to work across different locations, if labs are moving towards regional consolidation
- provide remote pathologist reporting functionality, if required.

> To fully realise the benefits of going digital, anatomical pathology labs need to ensure they have the right platform in place in their LIS.

[1]Filippo Fraggetta, Esther Diana Rossi, and Liron Pantanowitz (2018) Advocating a Laboratory Information System–Centric Approach to Digital Pathology. Archives of Pathology & Laboratory Medicine: April 2018, Vol. 142, No. 4, pp. 434-434.

[2] Stathonikos, N., Veta, M., Huisman, A., & van Diest, P. J (2013). Going fully digital: Perspective of a Dutch academic pathology lab. Journal of pathology informatics, 4, 15. doi:10.4103/2153-3539.114206.

[3] Guo H, Birsa J, Farahani N, Hartman DJ, Piccoli A, O'Leary M, McHugh J, Nyman M, Stratman C, Kvarnstrom V, Yousem S, Pantanowitz L. Digital pathology and anatomic pathology laboratory information system integration to support digital pathology sign-out. J Pathol Inform [serial online] 2016 [cited 2019 Jun 19];7:23.

[4] http://www.hl7.org/implement/standards/product_brief.cfm?product_id=185

[5] Cheng, Chee Leong, Injecting Digital Pathology into the Diagnostic Laboratory – is it possible to Integrate Painlessly? Oct 2014

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Interesting Case Study

A man in his early 60's was diagnosed with a small bowel obstruction and consequently had an endoscopy where an obstructive bowel tumour was identified in the jejunum and multiple biopsies were taken.

The H&E showed a poorly differentiated tumour of unknown origin within the lamina propria and a background of reactive lymphoid infiltrate. The initial impression was of either poorly differentiated carcinoma (possibly metastatic, including renal origin) or lymphoma.

An IHC panel of Ki67, CD3, CD10, CD20, CD30, PAN CK, CK7, CK20 and BCL2 was performed and CD10 and Ki-67 were the only positives. Based on this renal cell carcinoma, melanoma, lymphoma and seminoma could all be possibilities.

The second panel of IHC was then performed consisting of SOX-10, synaptophysin, vimentin, CD31, CD34 and CD45. These all showed no significant staining and ruled out melanoma and lymphoma.

The third and final panel of c-kit, PLAP, HSA and AE1/AE3 (to cover any cytokeratins possibly not included in our initial PAN CK) provided positive staining for PLAP and c-kit, which is indicative of a seminoma.

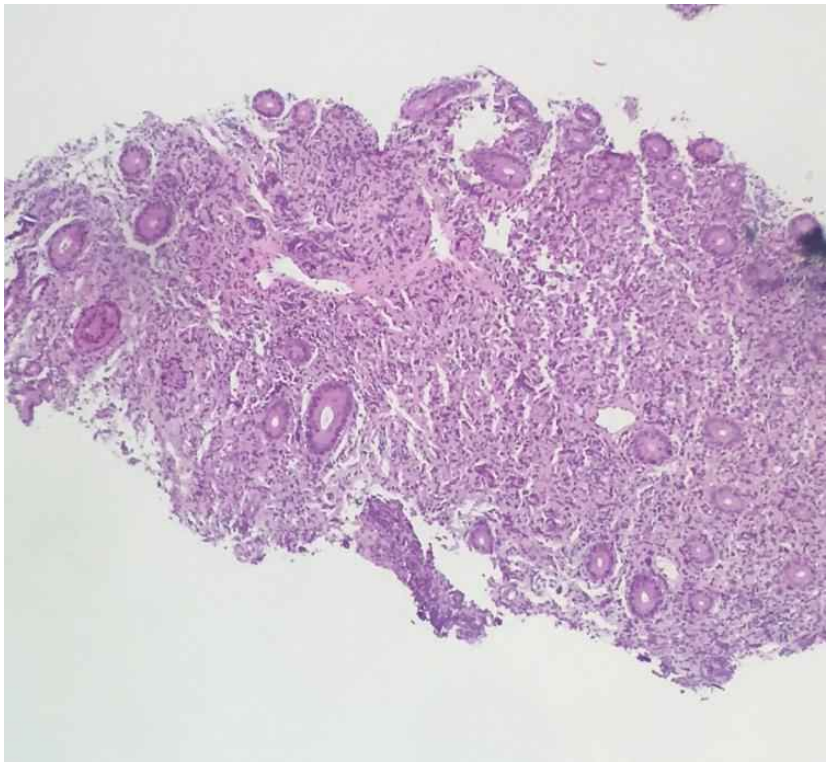

Figure 1 H&E tumour in the lamina propria with pleomorphic cells and hyperchromatic nuclei

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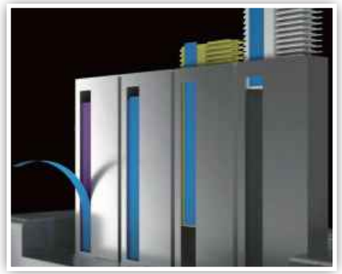

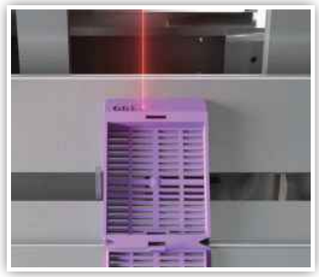

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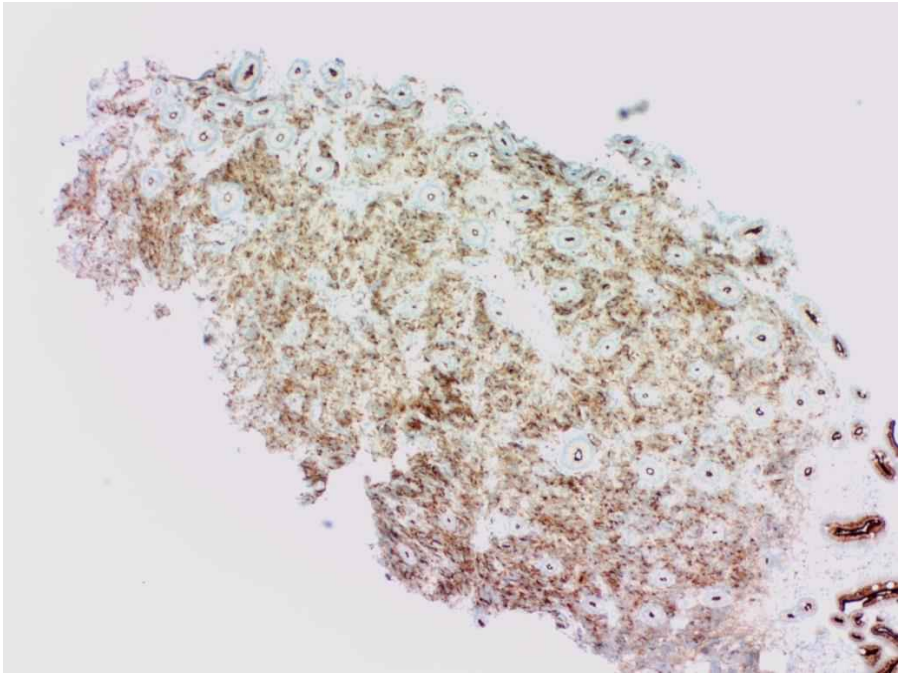

Figure 2 CD10 showing positive labelling of tumour cells

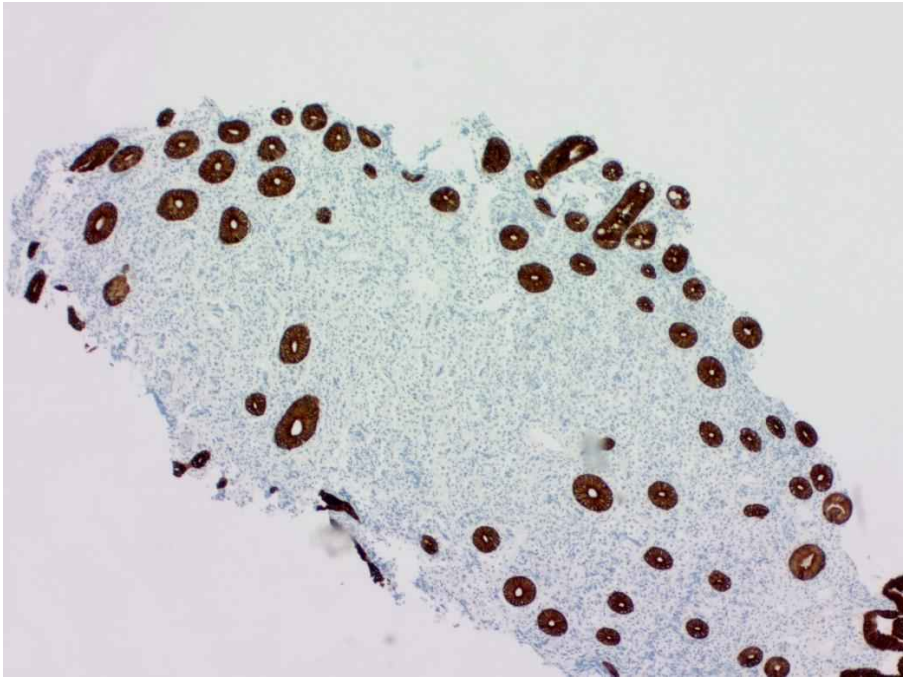

Figure 3 PANCK showing negative tumour cells and normal staining of the epithelium

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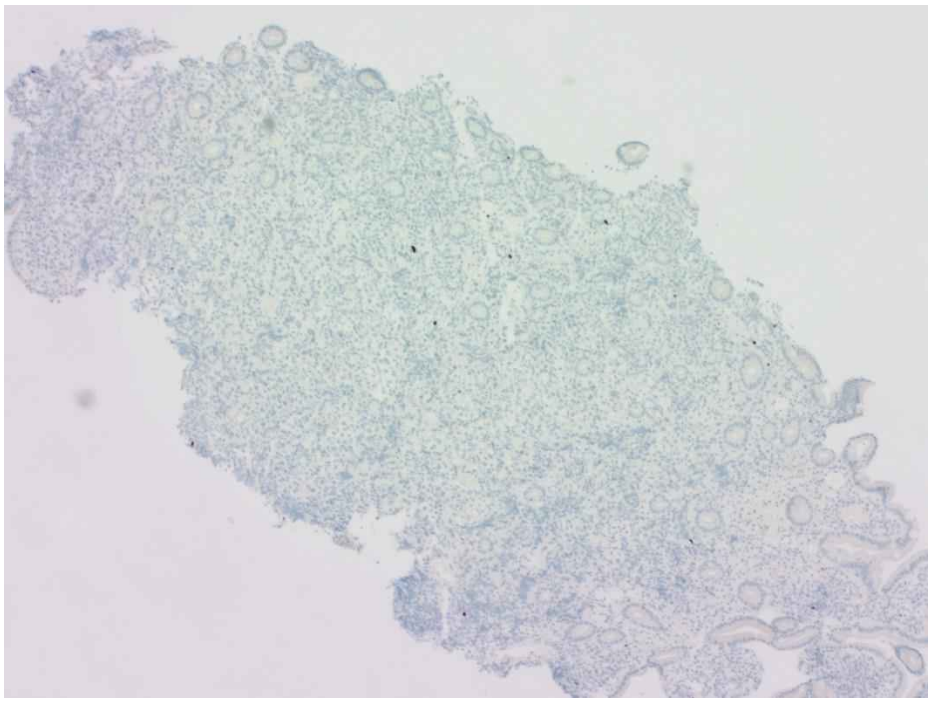

Figure 4 SOX-10 showing no positive staining

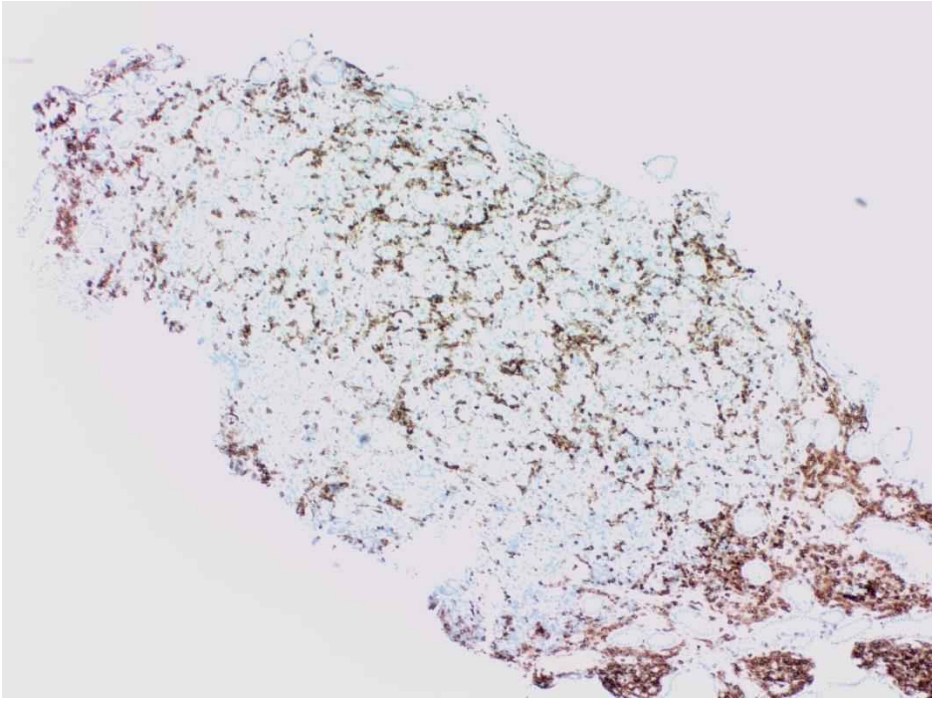

Figure 5 CD45 showing background inflammatory cells

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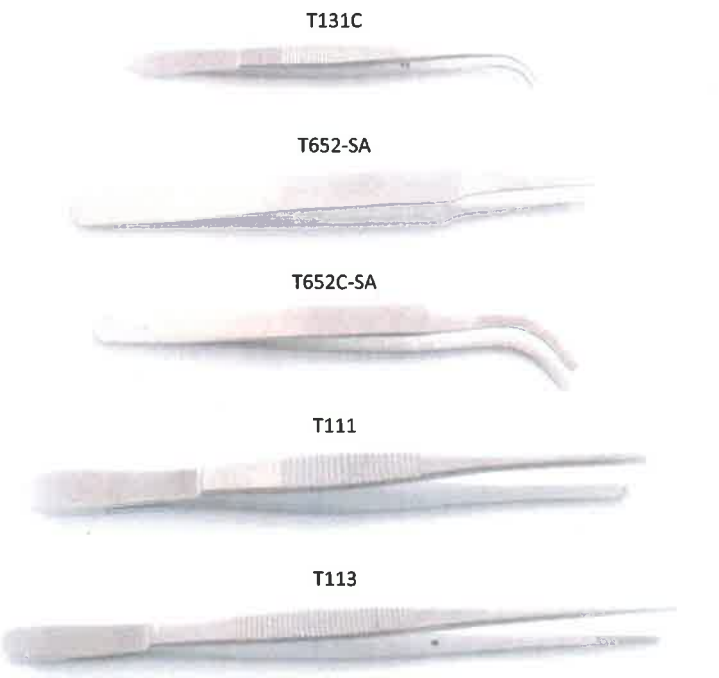

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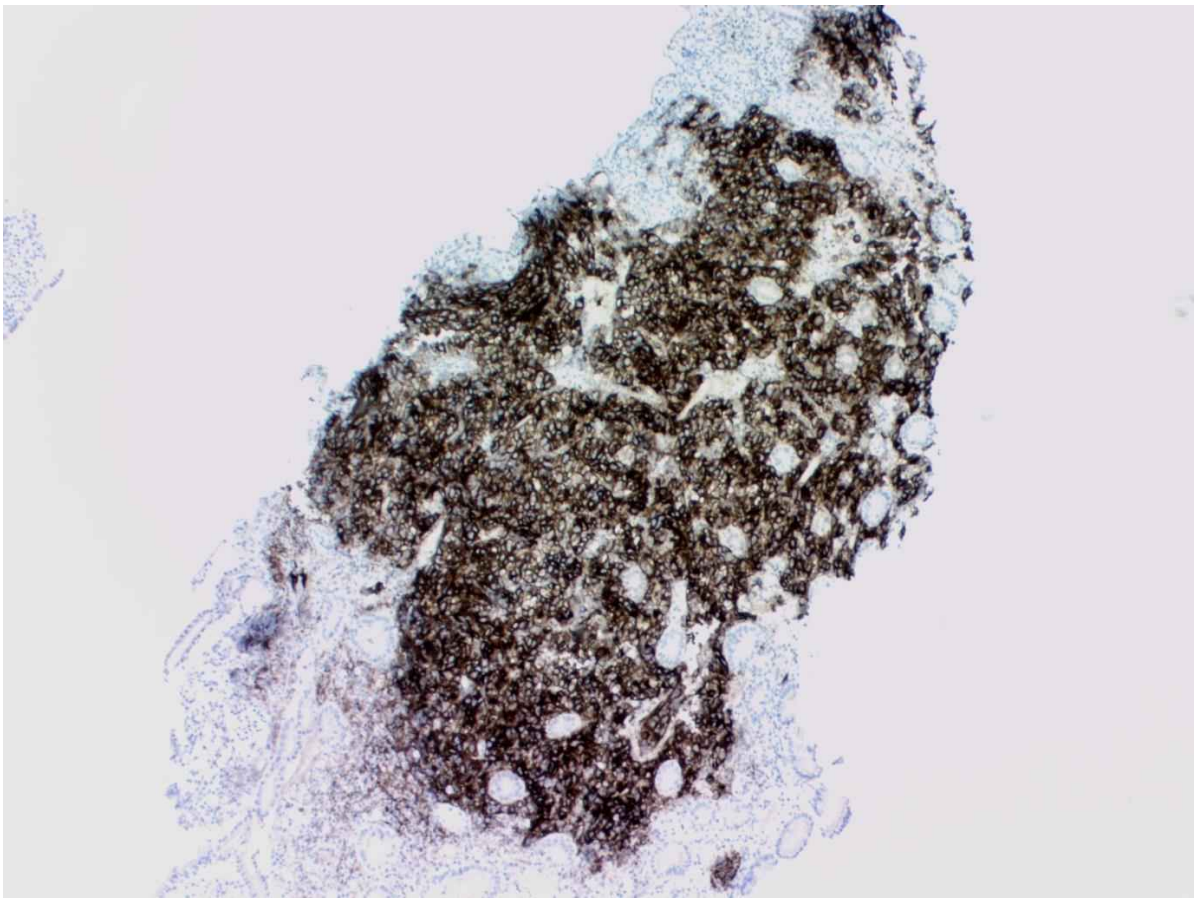

Figure 6 PLAP showing strong positive staing of tumour cells

Vimentin is typically positive in seminomas but was negative in this case but due to the CD10, PLAP and c-kit staining positive, the H&E morphology and associated lymphocytic reaction all being in keeping with a seminoma made it the favoured diagnosis.

Based off this diagnosis a CT scan was performed which identified a testicular mass and enlarged retroperitoneal lymph nodes. The patient was then referred to an urologist for an orchiectomy and the findings from that resection were reportedly in keeping with seminoma.

Metastatic seminoma can be very chemotherapy-sensitive and this would impact the choice of therapy for ongoing management, including of the small bowel metastasis.

By Meghan Leo, with thanks to Dr Shane Battye.

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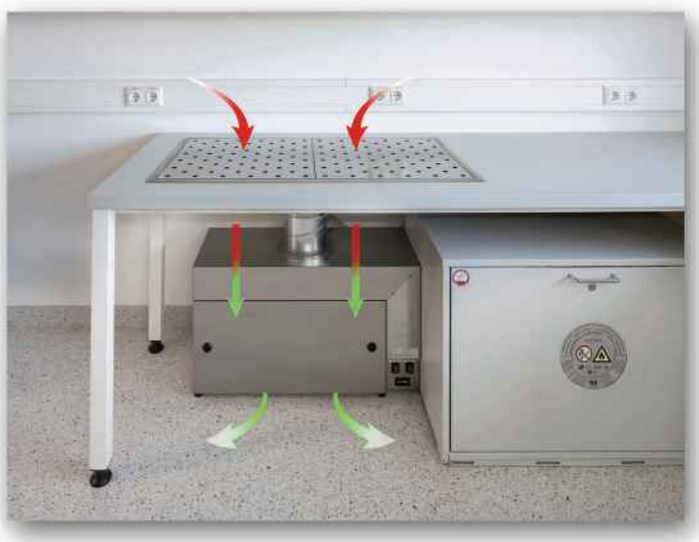

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Interesting Lymphoma case

Speaker- Aysha Du (Boxhil Hospital)

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