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PARAFFINALIA NEWSLETTER

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HGVT

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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President's Report

Hello Histopeeps,

Well it has been 3 long, iso months since our last newsletter. The second wave of corona virus has left many hospitals and medical staff fatigued here in Victoria. Elective surgery restrictions have seen reduced hours in many labs and working in teams, to maintain a healthy work force is always available, does mean shifts have changed. On a brighter note, we have all learned resilience, while developing new ways to do business and certainly I appreciate the freedom to travel more than ever before.

The HGVT's virtual meetings have been well attended, so much so, we have had to pay for a larger zoom package to run the sessions. So thanks to everyone who has joined in. Considering Victorian curfews, the winter * chilly nights and our new zoom package, we decided to squeeze 2 meetings into August. A huge thanks to Sam for coordinating these sessions. Rest assured we are giving ourselves September off, before we have another virtual meeting in October including our AGM. Stay safe and fingers crossed that life will return to something resembling pre-covid days sooner than later.

Kerrie Scott President

P.S. For that extra look at the previous meetings they can be found at this link

https://drive.google.com/drive/folders/1Jj8NbEEh7ZLxpcLR0UrrJOOHnI3WK73X?usp=sharing

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UNDER THE MICROSCOPE WITH YVETTE BAEBER

What was your first part-time job?

My first job was as a Medical receptionist for a sports medicine clinic. I was 14 year old and earnt \$4.73 per hour.

How long have you worked in histology?

I have worked in histology for 18 years. Initially as a trainee scientist at Southern IML Pathology in Wollongong NSW. For the last 16 years I have worked at Monash Health as second in charge of Immunohistochemistry.

When people ask, "So, what do you do?" How do you explain Histology?

I generally tell people that I work in Pathology dealing with tissue samples. Explaining that we can get anything from small biopsies to large specimens that we process and produce a slide that is then given to a pathologist to diagnose. The pathologist may then require further specialized testing such as immunohistochemistry. My family explains my job as "she cuts up people".

What is a skill you'd like to learn and why?

I have always wanted to learn to speak another language probably French. Can see a nice little French Chateau in my retirement after I win the lottery.

If money was no object, what would you do all day?

I love to travel and I also love photography. Could happily do that I think for many years before I got bored.

What's an ideal weekend for you?

A hike somewhere with my camera and a beautiful long lunch with a group of friends at a winery.

If you could take only THREE items with you to a deserted island, what would they be?

My kindle, my camera and solar powered battery to charge both.

What's on your bucket list this year?

Wow that is really difficult to answer now as I will be cancelling my trip to Europe to sail the Greek islands (definite bucket list item) so maybe while I am stuck at home I should starting learning French.

Where do you most want to travel, but have never been?

I would love to go to Iceland to see the Polar bears and the Northern lights.



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ONLINE SCIENTIFIC MEETING <u>REVIEW</u> *The Uterus: Gross Anatomy and Dissection – What to look for?* By Kellie Vukovic

On Thursday 18th June 2020 the HGVT held our first ever online Zoom scientific meeting which was a huge success with 100 participants. The committee were pleasantly surprised with the popularity of the event and are hoping to run more meetings in this format later in the year. The HGVT are aware that a number of people were unable to log on because maximum numbers were reached so will make the necessary changes to ensure this doesn't happen again in the future. The presentations were recorded and can be accessed online for those who missed out.

I decided to present on a uterus because it is one of the most common specimen types we get in a routine histology laboratory. So what is a uterus? It is a hollow muscular organ located in the female pelvis between the bladder and rectum. The ovaries produce the eggs that travel through the fallopian tubes. Once the egg has left the ovary it can be fertilized and implant itself in the lining of the uterus. The main function of the uterus is to nourish a developing foetus prior to birth. The uterus is traditionally divided into two components: the uterine body and the uterine cervix. The uterine body extends from the superiorly located fundus to the point of maximum narrowing which corresponds to the location of the internal os. The endometrium is the innermost lining layer of the uterus, and functions to prevent adhesions between the opposed walls of the myometrium, thereby maintaining the patency of the uterine cavity. During the menstrual cycle, the endometrium grows to a thick, blood vessel-rich, glandular tissue layer. Myometrium is the smooth muscle tissue of the uterus. The cervix encompasses the lower part of the uterus, beginning at the internal os. The cervix is composed of an inner endocervical canal lined by columnar epithelium and a rounded outer ectocervix covered by a squamous epithelium.

When we get a uterus at the cut up bench there are a few different things to look out for to help us orientate it. Several thick ligaments surround and support your uterus as it grows during pregnancy. One of them is called the round ligament. The round ligament connects the front part of the uterus to your groin, the area where your legs attach to your pelvis. This is anterior. In addition, the anterior peritoneum reflects onto the bladder so is often loose and does not extend as far inferiorly along the uterus as the posterior peritoneum. So the side with the lower adherent peritoneum is posterior. Adherent tubes and ovaries can also be used for orientation with ovaries lying posteriorly. So you would ideally have round ligament, tubes then ovaries from anterior to posterior.

After we have worked out our orientation, the specimen is inked, measured and weighed. Standard inking across most institutions is anterior blue and posterior black. Forceps or a probe are inserted into the cervical opening and used as a guide

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"The Uterus: Gross Anatomy and Dissection – What to look for?" continued

to the cut the uterus into anterior and posterior halves. The forceps line the endometrial canal and usually allow for a pretty accurate opening

There is often more than one way to cut something at the bench and it will often depend on where you work and what the preference of the reporting pathologist is. *The RCPA cut up manual is an excellent resource and should be routinely used in a complex cut up area.* I discussed two ways I have learnt to block a uterus and the benefits and disadvantages of each. At Sullivan Nicolaides in Brisbane one longitudinal section of the anterior and posterior cervix is taken which is standard practice everywhere. Two transverse sections of the endometrium and myometrium called endomyometrium are then taken from each side. This technique works well to get a nice even section of the endometrium and you can easily state the direction the sections are taken from – superior to inferior. It however has limitations if there is a tumour because as you can imagine it becomes difficult to measure the distance to the inferior margin. So a benign uterus without tubes and ovaries can be blocked in as little as six blocks.

This technique of cutting a uterus was all I knew until I started at Melbourne Pathology where I have now changed how I section. So the cervix sections are taken exactly the same – one longitudinal section is taken from the anterior and posterior cervix. The direction of cutting for the endometrial sections however is completely different. Longitudinal sections of the entire uterus are taken. This creates a better overall picture of the uterus and submitting an entire slice can be enough to show the pathologist the margins they need to assess. Disadvantages of cutting this way however are the sections can be wedgy due to the rounded shape of a uterus.

We see a uterus almost every day in the lab so I decided to discuss some of the common terms we see written on a request form that people may not be aware of. Menorrhagia is the medical term for menstrual periods with abnormally heavy or prolonged bleeding. Dysmenorrhea, also known as painful periods, or menstrual cramps, is pain during menstruation. DUB or dysfunctional uterine bleeding is now known as abnormal uterine bleeding. It is irregular uterine bleeding that occurs in the absence of recognizable pelvic pathology, general medical disease, or pregnancy. A Colposcopy is a procedure to closely examine your cervix, vagina and vulva for signs of disease. D+C or dilation and curettage is a procedure to remove tissue from the inside your uterus. These are all words we see every day and it is important to recognise what each one means before we pick up a blade.

The presentation concluded with a brief explanation of some of the reasons a uterus is removed. Uterine prolapse occurs when pelvic floor muscles and ligaments stretch and weaken and no longer provide enough support for the uterus. As a result, the uterus slips down into or protrudes out of the vagina. Fibroids are non-cancerous growths or lumps of muscle tissue that form within the walls of the uterus. It is not known exactly why fibroids occur however, we do know the female hormones, oestrogen and progesterone play a significant

"The Uterus: Gross Anatomy and Dissection – What to look for?" continued

role in stimulating the growth of fibroids. Sometimes as it thickens, the endometrial lining wanders outside of the borders of the uterus and builds upon the ovaries, fallopian tubes, or tissue that line the pelvis, known as Endometriosis. Even though it's outside of the uterus, this tissue will continue to grow and then break down as you menstruate. Endometrial hyperplasia is a condition in which the endometrium becomes abnormally thick. Although endometrial hyperplasia is not cancer, it can lead to uterine cancer in some women. There are two main types of uterine cancer. Endometrial cancers begin in the lining of the uterus (endometrium) and account for about 95% of all cases. Uterine sarcomas develop in the muscle tissue (myometrium), and is a rarer form of uterine cancer. Cervical cancer is the growth of abnormal cells in the lining of the cervix. The most common cervical cancer is squamous cell carcinoma, accounting for 70% of cases.

The cutting of a LLETZ and cone is also dependent on where you work. At SNP the most common question I got from people at embedding would be whether or not the ends should be embedded ink side down on a LLETZ specimen. A large loop excision of the transformation zone (LLETZ) or laser surgery are done to remove a sample of tissue from the cervix or treat precancerous changes. These can be received unorientated or orientated. At both Melbourne Pathology and SNP the procedure is to transverse section these. If it is orientated it usually fits in 4 blocks with the end pieces in separate blocks. Unorientated ones can have the end pieces in the same block, usually the first one. The specimen usually falls apart when cutting because of the central os. During a cone biopsy, a cone-shaped piece of tissue is removed from the cervix so is deeper than a LLETZ. These may be used to treat early-stage cervical tumours. At SNP these are radial sectioned so imagine cutting a pie or a pizza. There are no "end pieces" to embed. At Melbourne Pathology transverse sections are taken. Again there is no right or wrong way to cut these- different Pathologists like different things.



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ANTIBODY OF THE MONTH



By Meghan Leo



TypeMonoclonal (can be rabbit or mouse)AntigenHHV-8 LNAIsotypeIgGControlKaposi's SarcomaLocalisationNuclear

Human herpes virus type 8 (HHV-8) is also known as Kaposi's Sarcoma (KS) associated herpes virus as it is an etiological agent of KS. It is also associated primary effusion lymphoma and the plasmablastic variant of Castleman's disease.

In KS patients the virus latently infects endothelial cells, B cells and monocytes.

The HHV-8 Latent Nuclear Antigen (LNA) is highly expressed during latent HHV-8 infection and is the protein used for IHC detection.

KS can mimic a large range of non-Kaposi sarcoma skin conditions as histologically it can express in a wide range of ways, hence the usefulness of HHV8 IHC to confirm or exclude KS.

References: Image 1 from https://www.abcam.com/hhv8-antibody-hhv83606-bsa-and-azide-free-ab267355.html

Image 2 from https://www.rmlonline.com/site/sections/115

ONLINE SCIENTIFIC MEETING REVIEW 6th of August 2020

Our first speaker was James Rickard from Peter Mac. He spoke on the difficulties in diagnosis of melanoma. As they often mimic the appearance of other tumours, it is necessary for confirmation using IHC. Only pagetoid type 'ugly' melanoma may not need IHC. The presence of pigment within the tumour is not a reliable diagnostic marker. Spindle cell types of melanoma are the most difficult to diagnose. Spindle cell melanomas are S100, SOX 10, HMB45 and Mel A positive and P40 and CK5/6 are negativity. The opposite result would indicate SSC. As melanoma shows varied presentations, it is useful to run a panel of antibodies-SOX10 with 95% sensitivity is good for desmoplastic melanoma, and S100 having a 86-91% sensitivity and a 70% specificity is also a must to include, Mel A is often negativity for desmoplastic melanoma and PRAME is the new antibody on the block. It stains 83% of primary melanoma and is good to differentiate between melanoma and naevus. It is clear there is no single marker and it is important to note that metastatic melanoma may lose expression of typical IHC markers.

Our second speaker was Surajit Dey from the University of Tasmania. He spoke about his research on the respiratory tract. He has been looking into cellular airways remodelling in asthma and *Chronic obstructive pulmonary disease* (COPD) and the overlap between the conditions. The epithelial lung shows no differences between the 2 diseases, but there are large differences in the reticular basement membrane areas. Surajit's work in researching these lung diseases, is looking to get better medication for the diseases and it might even be useful in assisting in Covid lung conditions.

Our last speaker was Upendra Chand from Monash. He showed us how to handle mastectomy specimens. There are 4 different types of mastectomy specimens-1- simple/ total

- 2- modified radical
- 3-radical (involves underlying muscles)
- 4-partial mastectomy

Surgery type is dependent on the clinical indications. Other important considerations are if the specimen is a post treatment sample, in which case it is important to know the burden of tumour. Upendra talked us through the sampling methods for the different mastectomy specimens.

For more details on all these talks please see the attached link and watch the presentations.

https://drive.google.com/drive/folders/1Jj8NbEEh7ZLxpcLR0UrrJOOHnI3WK 73X?usp=sharing





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Sarah has worked in the diagnostic market for many years. Whilst completing a Bachelor of Applied Science (Medical Laboratory Science) at LaTrobe University, and a Masters of Biomedical Science at Monash University, she spent University holidays gaining practical experience by working in various pathology laboratories. She also worked in research and development at CSL.

Sarah moved to the commercial sector working for various companies including BD and Siemens, she now assumes responsibility for business development in Victoria, South Australia and Tasmania. Her new role will include promoting innovative new products to MetaGene's southern region customers.

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Interesting Case Study By Meaghan Leo, with thanks to Dr. Shane Battye

A woman in her late 50's underwent a colonoscopy where three polyps were seen and biopsied.

The H&E of the transverse colon polyp showed four fragments of polypoid large bowel mucosa. One fragment contained a cellular infiltrate of poorly cohesive cells, with some showing signet ring cell morphology and intracytoplasmic mucin. Signet Ring Cell Carcinomas (SRCC) are typically of gastric origin but can also in rare occasions can be of bowel, breast, gallbladder, urinary, bladder and pancreas origin. Due to the likely hood of this being a metastasis, most likely from the stomach rather than a primary colon cancer IHC was ordered to confirm.







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Interesting Case Study continued

An IHC panel of PAN CK, CD68, CK7, CK20, ER, PR, HER2 and GATA3 was performed and unexpectedly CK7, ER and GATA3 were all strongly positive, indicating that breast was now most likely the origin rather than gastric.



Figure 9: HER2 showing negative staining with some slight background

Interesting Case Study continued



Figure 10: CD68 showing a positive background of macrophages



Figure 11: PAN CK showing positive staining in tumour cells and normal positive staining in the epithelium

After viewing the H&E the gastroenterologist was phoned and informed that the patient had carcinoma and that it was most likely of gastric origin but an IHC panel was underway and would give a more definitive answer. Based on this provisional conclusion the gastroenterologist brought the patient back for a gastroscopy while the IHC results were still pending.

Five gastric biopsies were taken during the gastroscopy, all showed a cell morphology that was in keeping with a primary gastric carcinoma. Interestingly if a gastroscopy had been performed at the same time as the colonoscopy, it would have been logical to assume that it was a primary gastric carcinoma and IHC would likely not have been performed to confirm.

Although SRCC can originate from almost all organs, approximately 90% of SRCC are of gastric origin. SRCC of the breast is rare and accounts for only 2-4% of all breast cancers. Breast SRCC are typically a subtype of lobular breast carcinoma but can also be a subtype of ductal carcinoma.

Scans and further testing on the patient confirmed a primary lobular breast carcinoma.

By Meghan Leo, with thanks to Dr Shane Battye.



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Congratulations to Alison Boyd with her 1st grandchild, Matilda (left) and with her second grandchild, Miles Ray (right) both happening since last Paraffinalia!





Gina Tritt's last day before starting at Leica with Marissa Lasham the new laboratory manager at Dorevitch. Best of luck Gina! The afternoon Peter Mac team celebrating their bursary student, Elysha's last week by having dinner. Great work Elysha!



Bruno the Golden Retriever (Belong to Upendra Chand)



Murray the French Bulldog (belongs to Kitty Feng)



Rogue and Ripley Border Collies (Belong to Yvette Baeber)

Had a recent exciting life event? While Histology is a fascinating science, it's no less fascinating than the members that make it all work!

We're welcoming photos to highlight your awesome team, lab social events, marriages, babies, pets like the beautiful examples in this issue or anything you've achieved that you'd like to shine a light on. Don't be shy, we'd be delighted to celebrate you!

Send your contributions to (editor@hgvt.edu.au) with a caption and look out for yourself in future newsletters!



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Unscramble the words taken from Kellie Vukovic's "The Uterus: Gross Anatomy and Dissection – What to look for?" and rearrange the circled letters to form the final answer at the bottom.

Below is an interesting fact, in cryptogram form. This issue it was obtained from Meaghan Leo's case study a few pages back that began with conspicuous polyps. Read through the case study to help with clues to the puzzle.

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MC-AU-00627



Future Events: <u>2020</u>

Org. No. A0035235F

Date: TBA

Virtual Meeting

Topic: MOHS

Venue: Streamed live and recorded using G-suite

October 9th

AGM







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