ACT PATHOLOGY

NEWSLETTER

Summer 2003 Number 60

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ACT PATHOLOGY at The Canberra Hospital
A teaching hospital of the University of Sydney
Hello again to all our readers. It's been a while since our last edition but I've finally managed to sit down and bring together this Summer 2003 version. I hope you'll find something of interest in it's pages.

We welcome Assoc. Prof Peter Hickman to the staff of ACT Pathology in his appointment as Director of Chemical Pathology. You'll find a brief bio on Peter in this issue from which you'll see Peter brings to us, great expertise.

Dr Robert Horvath, our registrar in Microbiology brings us up to date on one of the most important health issues of 2003 — Severe Acute Respiratory Syndrome (SARS). The initial flurry of lay press coverage this new disease received earlier in the year was reminiscent of HIV/ AIDS when it first hit the headlines in the early 1980s.

And speaking of Dr Horvath, congratulations go to him and our other registrars Dr Leonard Wu (Anatomical Pathology) and Dr Phillip Crispin (Haematology). All three were recently successful in their respective disciplines in the Royal Australasian College of Pathologists Examination. Once again ACT Pathology maintains an excellent standard of training and teaching with the results speaking for themselves.

Dr Jane Dahlstrom from Anatomical Pathology recently appeared in an article in The Weekend Australian promoting Pathology and it’s sub-specialities as a career for young medical graduates. Interestingly and sadly , the importance of Pathology as a subject has come under question as more and more medical schools adopt the so called ‘problem-based’ style of teaching. Pathology along with Physiology and Anatomy form the fundamental three indispensable basic sciences upon which modern medical practice is built. The RCPA recognises the importance of Pathology syllabuses in medical schools and the new ANU Medical School has and will, make several key appointments in Pathology. It’s decline in popularity can only be detrimental to both the medical profession and the community in the longer term. We at ACT Pathology applaud Dr Dahlstrom in her efforts to raise the profile.

Finally, I would like to mention Prof. Peter Herdson. Peter as nearly all our readers would know, is a past Director of ACT Pathology and perhaps more importantly , a past editor of this publication. It was a delight to catch up with him again a couple of months ago whilst he was back in Canberra visiting. He and his wife Carol have retired to what I believe, is a very picturesque part of the Prof’s homeland of New Zealand. As the Editor Emeritus of ACT Pathology News, Peter told me he had each and every edition since it's inaugural publication back in the early nineties— except one. We were able to find a copy of that missing edition and I believe Peter now has a complete set!

I hope Peter and all our readers enjoy the Summer 2003 edition.

James D’Rozario
Editor
james.d’rozario@act.gov.au
New appointment

The Autumn edition of our newsletter saw the introduction of Professor Julia Potter, the new Director of ACT Pathology and Professor of Pathology for the ANU Medical School. We now welcome her husband, Dr Peter Hickman, to the role of ACT Pathology Director of Chemical Pathology.

Drs Hickman and Potter are no strangers to Canberra. They met in the early 70s while studying their PhD at the ANU. Dr Hickman attended the Biochemistry and Molecular Biology Institute (BAMBI), which was widely reputed as being one of the best research institutions in Australia at the time. They married in Canberra and now return after almost 30 years.

Dr Hickman started a basic Science degree in his home state of South Australia in the late 60s and it was during his research at BAMBI that he decided to move onto studying medicine after completion of his PhD. He undertook his FRCPA in Western Australia and in 1988 they moved to Brisbane where he was appointed Director of Chemical Pathology at the Princess Alexandra Hospital, then the second biggest teaching hospital in Australia. Although the service load was quite heavy, he managed to keep some research going, with liver disease and haemochromatosis, and troponin and cardiovascular disease being his principle clinical interests.

Along the way Dr Hickman was appointed to the Editorial Board of the journal Clinica Chimica Acta and was made Chief Examiner in Chemical Pathology by the Royal College of Pathologists of Australasia (RCPA). In addition to his appointment at ACT Pathology, he has been appointed as Associate Professor in the ANU Medical School.

Much of Dr Hickman’s spare time since arriving in Canberra has involved setting pathology exams for the RCPA and looking for a place to live. Although he was a keen skier first time around in Canberra, he is a little reluctant to return to the slopes after a 30 year break. However, he hopes to resume playing golf on a regular basis and otherwise finds entertainment and comfort in reading, listening to music and drinking fine red wine.

Dr Hickman is readily available for consultation regarding pathology results and is looking forward to interacting with local GPs at future GP educational evenings.
We’ve gone live!

ACT Pathology is very proud to introduce our newest resource for the Canberra community: www.actpathology.act.gov.au

This site has been developed as a current and dynamic source of information on all things ACT Pathology. We hope that clinicians, patients and students alike will find it a useful tool.

Some of the key features include:

- GP Education: details of ACT Pathology’s GP education program, including upcoming events and a handy link to the ACT Division of General Practice education calendar.
- Doctor factsheets: information on a range of specialised testing such as ‘Autoimmune Serology’ and ‘Bleeding Disorders’.
- Patient factsheets: information for patients relating to pathology collection procedures such as ‘Faecal Occult Bloods’ and ‘Glucose Tolerance Testing’.
- Opening hours, locations and maps for ACT Pathology Collection Centres.
- The Pathology Museum: a library of images of pathology specimens and their clinical descriptions.
- Pathologist ‘bios’.
- News items such as new tests and services.

Production of the website has been a joint effort between ACT Pathology and ACT Health’s IT team.

ACT Pathology is committed to the continued development of the site, so if you have any suggestions for enhancements please make sure you share them with us.

Happy surfing...

Kristen Laurent
Customer Service Manager

Summer 2003 Quiz

THIS EDITION—IMMUNOLOGY....

1 Which two famous Immunologists—both of whom worked at JCSMR in Canberra—shared a Nobel Prize in 1996? (It was awarded for their contribution to our understanding of cell-mediated immunity.)

2 T cells and B cells. What do the ‘T’ and ‘B’ stand for?

3 When human test substrate is used (e.g. HEP-2 cells) Anti nuclear factor (ANF) tests are positive in approximately 95% of patients with SLE. True or false?

4 How many practicing Clinical Immunologists are there in the ACT region?

5 Which famous English physician introduced vaccination into medical practice?

Once again all respondents (except practicing Immunologists) will go into a draw and be eligible to win a $30 voucher from Jim Murphy’s Cellars, Fyshwick. Send your answers to Ms Kristen Laurent, ACT Pathology, PO Box 11, Woden 2606 or Kristen.Laurent@act.gov.au

Last issue’s winner was Dr Rob Griffith of Red Hill—congratulations Rob!

The correct answers were:

1 Wallace Coulter—the inventor of the automated Haematology analyser. Wallace was an electrical engineer who in the 1930s realised vast numbers of cells could be counted using the principle of a change in electrical impedance. He and his brother ultimately founded Coulter Diagnostics—a multi-national firm that now produce a huge variety of sophisticated automated diagnostic machinery.

2 Iron deficiency and the thalassemias are the most common causes of microcytosis in the ACT.

3 Queen Victoria was a carrier of Haemophilia A.

4 Dr Michael Pidcock MB, BS, FRACP, FRCP, FRCPA is the current Director of Haematology.

5 Group O—the most common ABO blood group in the ACT (and many other geographical regions).
SARS—Lessons to be learnt

ROBERT HORVATH
MICROBIOLOGY REGISTRAR,
THE CANBERRA HOSPITAL

Background

During the past century, several viral diseases arising in the Asia/Pacific region have caused consternation and panic in the general populace as well as the medical and scientific communities of the region. The most deadly was the ‘Spanish Flu’ orthomyxovirus pandemic of 1918–20. This arose in China but was first publicly reported in Spain which being neutral during WWI did not censor press reports of the catastrophe unfolding globally. It is estimated to have resulted in 20–40 million deaths! More recently, in 1994, in Brisbane, Hendra virus (a paramyxovirus like measles) claimed several racehorses and 2 human lives (1 of which died of a respiratory illness histologically and clinically very similar to SARS), and is thought to have originated from fruit bats. Luckily there was no human-to-human transmission so a major catastrophe was averted. In 1998–99, in Malaysia, Nipah virus (a paramyxovirus) affected pigs and humans and claimed 100 lives with an encephalitic illness, and resulted in the decimation of Malaysia’s pig industry. Again, the source was felt to be fruit bats and again there appeared to be no person-to-person transmission. The common pattern appears to be new or mutated viruses crossing the species barrier in circumstances where there is considerable mixing of animal species.

History of the SARS outbreak

During November 2002, an outbreak of a severe respiratory illness was reported in Guandong (Canton) province, China. Over the next few months several hundred cases were reported with a predilection for health-care workers. Although a Coronavirus was isolated on February 26 by viral culture techniques in Beijing, The Chinese Department of Health reported the outbreak as due to Chlamydia.

In late February, a clinician involved in the care of victims of this outbreak stayed briefly on the 9th floor of the Metropole Hotel in Hong Kong, whilst unwell with a respiratory illness. It is estimated that he transmitted his illness to a dozen other guests staying on his floor, who subsequently carried it across the globe. One of these, a German tourist, then flew to Australia, toured NSW for several weeks, visited a GP for her respiratory illness, then flew back to Germany where her illness was...
confirmed by laboratory techniques. There was luckily no spread within Australia.

In the early weeks of March, multiple cases of severe pneumonia emerged in Hong Kong, Hanoi and Toronto. After several deaths and the apparent spread to health care workers, the WHO sounded its first ever global alert on March 12 naming this outbreak ‘Severe Acute Respiratory Syndrome’. Hysteria ensued, with quarantine of entire villages in some regions. The world travel industry was dealt a heavier blow than even the World Trade Centre destruction episode.

International co-operation on an unprecedented scale resulted in the identification of a new Coronavirus (SARS-CoV) as the causative agent by March 24th. Laboratory identification tests for SARS-CoV rapidly followed. The next good news was the successful containment of the outbreak in Hanoi by April. Eventually this outbreak was contained in all regions, and on July 5th, The WHO announced SARS was globally contained. It is estimated that 8500 people were diagnosed with SARS and 900 died. The source of this outbreak is unclear, several mammals (particularly civet cats) have been implicated, but again the initial source is possibly a bird or bat.

**SARS Clinical**

Incubation period 2–10 days (rarely longer). Transmission appears to occur only when the index case is symptomatic. Most cases gave a history of close contact with a symptomatic case. Most cases either do not transmit the disease or transmit it mainly to a few close contacts. Several ‘super secretors’ appear to account for most of the disease’s lightning spread, with each of these infecting dozens of others, often with minimal contact. Transmission primarily by aerosol/ inhalational route, but hand-to-mouth contact is also presumed to have occurred (the virions can survive up to several hours on environmental surfaces). A cluster of cases in a Hong Kong Apartment block is felt to have been due to inhalation/ ingestion of virions from leaky sewerage pipes carrying effluent from a victim with severe diarrhoea. Infective virions have been cultured from throat/ respiratory and stool specimens and can persist in the stools for several weeks.

The disease manifests with a viral prodrome of fevers, myalgias, malaise and headaches. This progresses over several hours or days to a respiratory illness with cough (generally non-productive) and dyspnoea. Diarrhoea is often present and is sometimes severe and prolonged. Symptoms may persist for days or weeks.

On examination, the only invariable feature is fever of > 38.0 C. Respiratory distress and other findings of viral pneumonia may be present. Radiology may reveal a wide spectrum from normal chest X-rays to ‘white-out’ ARDS patterns with various patterns between including lobar or non-lobar infiltrates. Haematology may reveal a thrombocytopenia or lymphocytosis. Biochemistry may reveal raised transaminases and CK.

On histology, only lung tissue appears to be involved. Changes vary from pulmonary oedema with hyaline membrane formation to gross consolidation. Lymphocytic interstitial infiltrates and vacuolated or multinucleated pneumocytes may be present. Viral inclusions have not been seen.

Microbiologically, most cases appear to be either PCR positive for SARS-CoV (from viral cultures or direct clinical specimens) or seropositive on ELISA.

**Coronavirus Science**

Coronaviruses are members of the order Nidovirales (‘nested’ viruses), and family Coronaviridae. They are enveloped single-stranded positive sense RNA viruses. They are irregular shaped, 60–220 mm in diameter, with the outer envelope bearing distinctive club-shaped peplomers giving it a crown-like
appearance (hence their name). There are 14 species described. It infects multiple vertebrates. In humans coronaviruses are usually associated with mild upper respiratory syndromes (they are felt to account for 15% of the ‘common cold’). They are also associated with viral gastroenteritis in children.

**Diagnosis of SARS and related coronavirus infections**

SARS is largely a clinical diagnosis (the current criteria are on the WHO website). Laboratory confirmation is via RT-PCR of clinical specimens (or of their product in Vero-cell cultures) or by ELISA SARS CoV antibody. The preferred specimens are nasopharyngeal aspirates, stool and blood. In Australia, this testing is only available at several reference laboratories (in NSW at Westmead and Prince of Wales Hospitals).

Sensitivity and specificity of these tests is as yet unknown.

**Laboratory role**

Specimens should be processed as per the WHO laboratory biosafety manual. Note that no laboratory workers appear to have been infected during the main outbreak. All suspected specimens should be processed as BSL 2, except cultures, which are BSL 3. Specimens likely to produce infective aerosols need to be processed in a biological safety cabinet. Staff processing these specimens require gowns, gloves and masks.

**Clinical Role**

Staff in direct contact with suspected cases need to wear masks (preferably N95 standard high efficiency masks, but standard surgical masks also offer some protection), gowns, and gloves, and dispose of these immediately after contact. Suspected cases should be isolated from other patients, preferably in rooms with negative pressure, and should also wear N95 masks. Procedures that may increase aerosol spread (eg nebulizers) should be avoided wherever possible, as they may amplify transmission of multiple infectious agents such as Coronavirus and Influenza virus.


**The future**

Hopefully, SARS appears to have been largely eradicated. There is however still potential for a recurrence. We need to remain vigilant for SARS or SARS-like illnesses in patients, especially those with a recent travel history.

**References**


www.cdc.gov
www.who.org
ACT Pathology Services

- **ACT Pathology**
  at The Canberra Hospital
  Gilmore Crescent, Garran
  Hours of operation
  Monday–Friday 7.30 am–5.30 pm
  Saturday 8.30 am–12.15 pm

- **Calvary Hospital**
  Ground Floor, Marian Building
  (Maternity entrance) Calvary Hospital, Bruce
  Hours of operation
  Monday–Friday 7.30 am–5.30 pm
  Saturday 9.00 am–12 noon

- **John James Medical Centre**
  Suite 21, Level 1,
  175 Strickland Crescent, Deakin
  Hours of operation
  Monday–Friday 7.30 am–12.30 pm and 1.30 pm–4.30 pm

- **Lyneham Collection Centre**
  Unit 2, 62 Brigalow Street,
  Lyneham (Lyneham shops)
  Hours of operation
  Monday–Friday 7.30 am–4.30 pm

- **Tuggeranong Health Centre**
  Level 1, Cnr of Anketell and Pitman Streets,
  Tuggeranong
  Hours of operation
  Monday–Friday 8.00 am–5.00 pm

- **Macquarie Medical Centre**
  Lachlan Street, Macquarie
  Hours of operation
  Monday–Friday 7.30 am–4.30 pm

- **Home Collection Service**
  ACT Pathology provides a home collection service for those who are unable to attend one of our collection centres
  Contact 6244 2816
  For home collection service in all suburbs