



PathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA



Issue #008

OCTOBER 2011 | Published by RCPA

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- Salicylate sensitivity is still a puzzle to be solved
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Welcome to the October edition of ePathWay

This month's articles include the complexity of diagnosing salicylate sensitivity, the global problem of antimicrobial resistance, why Pap smears save lives and a roll call of intestinal parasitic diseases to be aware of when travelling overseas.

Antimicrobial resistance is a global health concern. The World Health Organization (WHO) selected combating this problem as their theme for 2011, and called on all stakeholders to act and take responsibility for this issue. Pathologists are already on the front line as they advise doctors if an antibiotic is working or not, and provide the data that informs policy about resistance.

We welcome your feedback about the stories covered in ePathWay, and hope you find it an invaluable way of being kept up to date about pathology in Australasia.

Interesting Facts

1 in 570

The estimated number of women who will develop cervical cancer with regular cervical screening

1 in 90

The estimated number of women who will develop cervical cancer without regular cervical screening

There's something great about George and Mary



This advice is for women. The next time you have a Pap smear spare a thought for Mary Papanicolaou. She was the wife of Dr George Papanicolaou whose discovery that cells in the cervix change their appearance before they become cancerous led to the invention of the Pap

4 out of 5

The number of people who will have had Human Papilloma Virus (HPV), the most common cause of abnormal cervical cell changes, at some time in their life

Sources: Department of Health and Ageing (Australia) cervical screening program fact sheet
National Screening Unit (New Zealand) information sheet on cervical screening

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smear in 1928. So why are we thinking about his wife Mary? Because she allowed her husband to perform a Pap smear on her every day for twenty years for his research!

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Intestinal parasites are not good souvenirs

Most people have heard of Bali Belly and Delhi Belly. In fact, getting gastro on an overseas holiday is not particularly alarming because it usually settles down after a day or so. But there are some intestinal parasites that don't make themselves known immediately, especially if a tropical country was on the itinerary, and these are 'souvenirs' you definitely don't want to bring home.



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Salicylate sensitivity is still a puzzle to be solved



There's a palpable frustration about salicylate sensitivity. People know they feel unwell to varying degrees after eating foods containing salicylates and other preservatives, but as Dr Stephen Adelstein, Immunopathologist and Clinical Immunologist at the Royal Prince Alfred Hospital says, pathologists can't measure a marker of the adverse effects that occur in some people because they don't actually know what to measure yet.

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Antibiotic resistant bugs are coming to a suburb near you

This is a sobering thought. World Health Organization (WHO) fact sheet No 1941 on antimicrobial resistance states: 'Infections caused by resistant microorganisms often fail to respond to conventional treatment, resulting in prolonged illness and greater risk of death.' This situation is not only happening in distant lands. Antimicrobial resistance to antibiotics is widespread in Australia and



New Zealand causing great concern amongst microbiologists.



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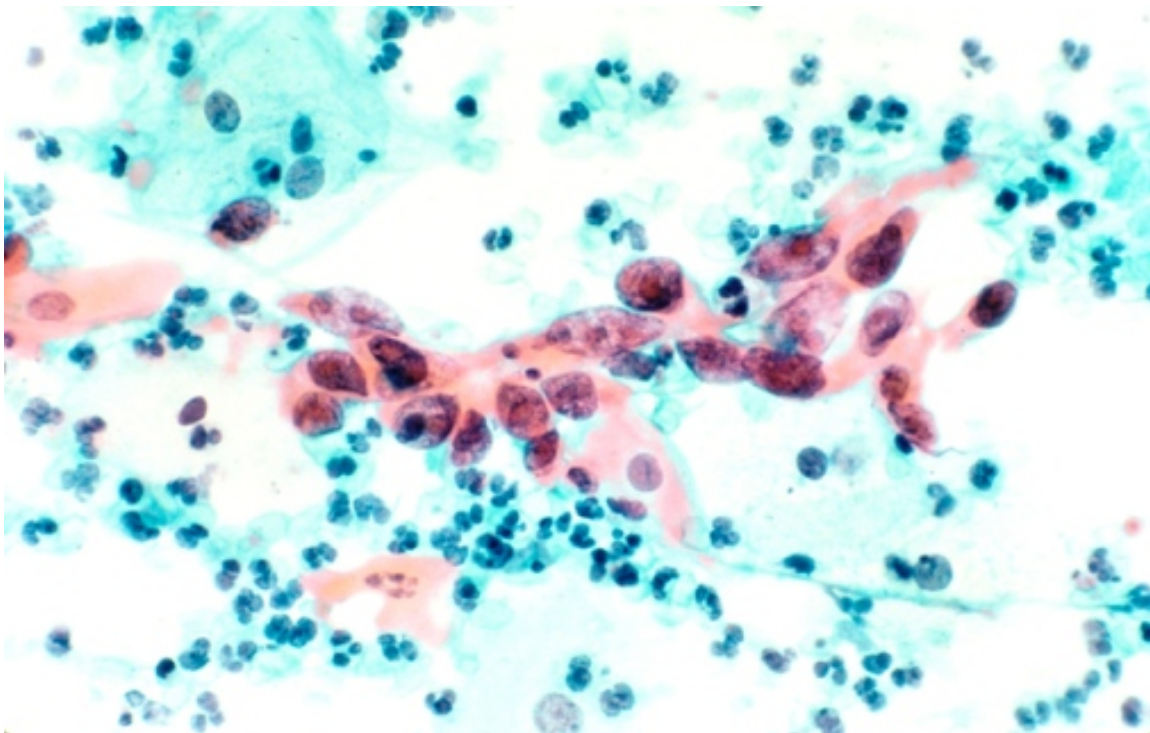
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This advice is for women. The next time you have a Pap smear spare a thought for Mary Papanicolaou. She was the wife of Dr George Papanicolaou whose discovery that cells in the cervix change their appearance before they become cancerous led to the invention of the Pap smear in 1928. So why are we thinking about his wife Mary? Because she allowed her husband to perform a Pap smear on her every day for twenty years for his research!

The Pap smear is a screening test to prevent cervical cancer by detecting and treating early cellular changes. The test involves cells being gently scraped from the uterine cervix and smeared directly onto a slide. The slide is sent to a pathology laboratory where a scientist examines the cells under a microscope. If any abnormalities are found, the slide is referred to a senior scientist and then a pathologist.

"Pathologists examine the cells and prepare a report to send to the patient's doctor," explains Dr Judith Bligh, histopathologist and cytopathologist at Sullivan Nicolaides Pathology. "This report forms the basis of how the patient is managed. Abnormalities are found in only five to seven percent of cases."

While the traditional Pap smear is still the main collection method of cervical cells in Australia, fluid based cytology is also available. The sample is collected in the usual way but the cells are rinsed directly into a preservative fluid. This sample is then prepared in the laboratory, with cells placed onto a slide for examination.

"There is an extra charge for fluid based cytology in Australia because this test is not covered by Medicare. However, in some

settings, for example, if the collection is unsatisfactory due to inflammation or blood, it may provide a better sample,” says Dr Bligh.

The cost of fluid based cytology is fully covered in New Zealand by their government.

Australian and New Zealand women are also the beneficiaries of organised national cervical screening programs which aim to reduce the incidence of cervical cancer. The Australian program recommends women between the ages of 18 and 70 years have a Pap smear every two years, while the New Zealand program recommends women between the ages of 20 and 69 years have a Pap smear every three years.

Regular Pap smears can prevent cervical cancer, which usually takes more than 10 years to develop, in up to 90 percent of cases. The Human Papilloma Virus (HPV)* causes most abnormal cervical cell changes.

“While vaccination against some forms of HPV is now available, it is not expected that this will prevent all cases of cervical cancer. So, it is important that immunised women also have a Pap smear,” says Dr Bligh.

If it seems like an inconvenience to find time for this important test, or it is put off due to the ‘embarrassment factor’, think of Mary Papanicolaou. If she could have a Pap smear every day for 20 years, then today’s women owe her the courtesy of regular screening to benefit from her husband’s life-saving discovery.

Links:

*HPV and cervical cancer is covered in [ePathWay 002](#)

Australia’s cervical screening program: <http://www.health.gov.au/internet/screening/publishing.nsf/Content/cervical-about>

New Zealand’s cervical screening program: <http://www.nsu.govt.nz/current-nsu-programmes/national-cervical-screening-programme.aspx>

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Most people have heard of Bali Belly and Delhi Belly. In fact, getting gastro on an overseas holiday is not particularly alarming because it usually settles down after a day or so. But there are some intestinal parasites that don't make themselves known immediately, especially if a tropical country was on the itinerary, and these are 'souvenirs' you definitely don't want to bring home.

"Travellers returning to Australia should visit a doctor if they become unwell within a few months," advises anatomical pathologist and infectious diseases specialist Professor Robin Cooke. "The symptoms to watch out for may be fever or diarrhoea, especially if it is profuse or is streaked with blood. There may also be blood in the urine, the presence of a lump under the skin somewhere or loss of weight. It is wise to tell the doctor that you have been overseas recently and exactly where you have been."

While these symptoms sound alarming, Professor Cooke says the majority of people who travel to tropical countries remain healthy and do not contract any serious diseases during their visit. But people do need to know there is the potential for infection. Professor Cooke suggests they seek the advice of a travel doctor before they leave, and report symptoms promptly on their return so they can be diagnosed and treated as soon as possible.

"If the doctor suspects that a person may have an intestinal parasitic disease they will request appropriate pathology tests," says Professor Cooke. "For example, urine, faeces, blood, sputum or pus may be tested for the presence of infecting organisms. Blood tests may be requested to see if there are living organisms in the blood circulation or to perform serological tests for a number of infecting organisms. If there is a lump or a skin rash, the doctor may take a biopsy or remove the whole

lump which will be sent to an anatomical pathologist who will look for an infecting organism.”

Many parasitic infections occur in the gastrointestinal tract from eating or drinking contaminated food and water, or from swimming in water with parasites. Professor Cooke says the most important conditions to watch out for include:

- Giardia: an infection of the small intestine caused by a microscopic organism contracted from drinking water contaminated by sewerage.
- Amoebiasis – an infection of the intestine from eating contaminated vegetables. It can remain latent in a person for many years.
- Cysticercosis - from eating pork infected with the pig tapeworm *Taenia solium*.
- Schistosomiasis - a parasitic disease transmitted by freshwater snails. Larval forms of the *Schistosoma* parasites, which are released by the snails, penetrate the skin of people in the water. It can be contracted from swimming in freshwater lakes and rivers in Africa and South America (especially Amazonian Brazil).

“One member of an Australian sporting team that visited central Africa developed symptoms of fever and blood in the urine. The team had been swimming in a lake there. He had a urine test which found the eggs of the *Schistosoma haematobium*,” says Professor Cooke. “Other members of the team had serum tests and some of them also had positive evidence of having been infected.”

Sometimes you can't avoid the parasitic infections that come with exotic locations. But knowing they exist, and seeking medical assistance if unusual symptoms develop, is the best insurance against bringing these unwanted souvenirs home.

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Salicylate sensitivity is still a puzzle to be solved



There's a palpable frustration about salicylate sensitivity. People know they feel unwell to varying degrees after eating foods containing salicylates and other preservatives, but as Dr Stephen Adelstein, Immunopathologist and Clinical Immunologist at the Royal Prince Alfred Hospital says, pathologists can't measure a marker of the adverse effects that occur in some people because they don't actually know what to measure yet.

"There is little reliable information or evidence at present about salicylate sensitivity, and it's quite controversial because of this," he explains. "We can't measure anything that is diagnostic of reactions to this family of compounds, and we know that reactions to these food ingredients are not caused by an antibody reaction."

Salicylates are chemicals that occur naturally in plants. They act as a natural preservative in many fruits and vegetables, and are also present in nuts, herbs, spices, jams, honey, yeast extracts, tea, coffee, juices, beer, wines and some medication (aspirin is a salicylate). Salicylates are concentrated around the surface of the fruit, and levels are highest when the fruit is unripe, and lowest when it is ready to drop off the plant.

The prevalence of salicylates makes it difficult to determine which foods are causing the symptoms of sensitivity such as headaches, muscle cramps, tiredness and flushing. Dr Adelstein therefore advises his patients to keep a food diary and to try to correlate symptoms with consumption of particular foods or food ingredients.

“The challenge is knowing where the problem comes from and which combination of foods pushes a person over their threshold,” he says. “For example, a person might have a cup of coffee and have no symptoms, and they might have a piece of fruit and have no symptoms, but if they have them together they experience symptoms.”

In the meantime, Dr Adelstein is hopeful more information about salicylate sensitivity will be revealed in the future, along with a way to measure the adverse reactions that result when some people consume too much.

“It’s probably a similar situation to where we were with coeliac disease* about a century ago,” he says. “People knew they couldn’t tolerate wheat, and the exact problem couldn’t be found at the time, but now we know it’s due to a reaction to gluten and we can measure it. Well, it’s probably going to be similar with salicylate sensitivity. One day we’ll solve this puzzle.”

* Coeliac disease is covered in [ePathWay 004](#)

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Antibiotic resistant bugs are coming to a suburb near you



This is a sobering thought. World Health Organization (WHO) fact sheet No 194¹ on antimicrobial resistance states: 'Infections caused by resistant microorganisms often fail to respond to conventional treatment, resulting in prolonged illness and greater risk of death.' This situation is not only happening in distant lands. Antimicrobial resistance to antibiotics is widespread in Australia and New Zealand causing great concern amongst microbiologists.

"We are using life saving drugs to treat conditions that largely get better by themselves," warns Professor John Turnidge, microbiologist and president of the Australian Society for Microbiology. "Antibiotics are often prescribed for conditions such as coughs, colds and sore throats when the people who need them are those with serious illnesses such as septicaemia, pneumonia and meningitis. This is where antibiotics have real value and save lives."

Professor Turnidge says antibiotic resistance is a problem on a global scale. Almost every country overprescribes antibiotics and excessive use accelerates the level of resistance.

"We need people to understand that antibiotics are not for everyone anymore," he says. "Bacteria have been around for millions of years and they are very sophisticated at dealing with stress, which is what happens to them when you introduce antibiotics. Antibiotic resistant bugs are doubly contagious. They can spread from person to person, and they can also transfer their resistant genes to each other."

Professor Turnidge says the superbug Methicillin-resistant *Staphylococcus aureus* (MRSA, also commonly known as the resistant golden staph) that was once confined to hospitals is now in the community. Additionally, *Escherichia coli* (*E. coli*) is becoming resistant to antibiotics. To put this in perspective, *E. coli* is a frequent cause of many common bacterial

infections such as urinary tract infection (UTI), inflammation of the gall bladder (cholecystitis), bacteria in the blood (septicaemia) and bloody diarrhoea.

While the list of antibiotics that are effective is diminishing, Professor Turnidge says fewer new antibiotics are being developed because many pharmaceutical companies have lost interest in developing them.

“It is better economics for these companies to produce drugs that people have to take all of their life, such as a blood pressure tablet, rather than a drug that people only take for a week at a time,” he says.

Not everyone has given up the fight. Professor Turnidge says pathology laboratories are where resistance is first detected and are in the front-line in the battle against the superbugs.

“Pathology labs are important for managing patients because they can tell a doctor if an antibiotic is working or not,” he says. “They also provide the data that informs policy about resistance and are able to say where we are going wrong.”

To make this situation right, Professor Turnidge says we need to rethink our use of antibiotics, not only here but also globally. WHO fact sheet No 194 also states that: ‘Inappropriate and irrational use of antimicrobial medicines provides favourable conditions for resistant microorganisms to emerge, spread and persist.’

“We need to look at how we manage minor illnesses,” says Professor Turnidge. “For example, the common cold needs common sense, not antibiotics.”

¹ <http://www.who.int/mediacentre/factsheets/fs194/en/>

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