

Pathologists as key team players in cancer management

As Director, Education for the Royal College of Pathologists of Australasia, I highly recommend Cancer Learning as a comprehensive and well-designed educational resource for all those involved in the care of cancer patients.

In my many years of working as a pathologist, like most pathologists, I played a vital role in the diagnosis and management of patients with cancer. Many people think that pathologists are hidden away in the laboratory, remote from patient care. Often they do not realise that pathologists are medically trained doctors who can be key players in multidisciplinary teams devoted to patient care. Virtually every cancer is diagnosed by a pathologist. There are several disciplines of pathology and we all have a vital role to play.

Anatomical pathologists examine biopsied material to identify tissues affected by cancer. They are able to confirm the initial diagnosis and to provide information about the type and stage of cancer in order to guide management and offer a prognosis. They often apply sophisticated molecular, immunological and genetic techniques to the study of tissue samples to provide very detailed information to guide the clinician. They may examine frozen sections, for example when a patient is on the operating table having a breast lump removed. During the operation, a sample can be sent to the lab where the pathologist can make an immediate diagnosis that will inform the surgeon regarding how much tissue needs to be removed. Further tissue samples are examined by the pathologist after the operation to confirm whether the tumour has been completely excised.

Cytopathology is a branch of anatomical pathology that involves the study of cellular material. For example, Pap smears are examined by pathologists to detect and prevent cervical cancer, and fine needle aspirates from tumours can be examined for malignant cells, often avoiding the need for more invasive biopsy procedures.

Haematologists study cells in the blood and from bone marrow aspirates to identify malignancies such as leukaemia and lymphoma. Many haematologists are trained as physicians as well as pathologists and have a very direct role in seeing patients in addition to consulting with other medical specialists. Ongoing examination of blood is essential for monitoring treatment of patients with cancer.

Chemical pathologists study the chemical and metabolic manifestations of disease in the blood. As cancer can affect many organ systems, often the first clue to a malignant disease can be a disturbance of blood chemistry, such as abnormal liver enzymes or an electrolyte imbalance. Monitoring blood chemistry is essential throughout cancer treatment, as many anti-cancer drugs have potentially toxic effects on the liver, kidneys and other organs. Chemical pathologists can also measure concentrations of drugs in the blood to ensure that the patient is receiving the correct dosage.

The causes of cancer are multifactorial. Pathologists who specialise in immunology and genetics are having an increasing role in understanding some of the underlying mechanisms and predisposing conditions for the development of cancer. Prof Ian Frazer, 2006 Australian of the year, together with his late research partner Dr Jian Zhou, developed a vaccine for cervical cancer. Since the vaccine's

global application in 2006, more than 40 million doses have been administered to women and girls in more than 90 countries.

As a microbiologist, I was often involved in diagnosing and managing some of the infectious complications of cancer treatment. Cancer treatment may render a patient highly susceptible to infection by suppressing the immune system, and sometimes infection may be life threatening. Rapid diagnosis of septicaemia, for example, and guidance to enable correct selection of antibiotics, saves many lives of cancer sufferers.

Pathologists are very much part of the cancer management team and good communication between pathologists, clinicians and other health professionals is essential for optimal patient care. Participation of pathologists in clinico-pathological meetings and continuous consultation with pathologists is a great way to ensure that test results are seen, understood and acted upon by clinicians in a timely fashion.

You can learn more about the roles of pathologists by visiting <http://www.rcpa.edu.au>. There you will also find a list of conferences and educational events that may be of interest to those working in cancer-related fields. The College also publishes an informative and user-friendly online manual at <http://www.rcpamanual.edu.au>. The Manual explains the selection and interpretation of pathology tests relevant to cancer and an extensive list of other diseases.

To read an article by Lisa Mitchell, published in Pathways, the quarterly RCPA publication, about the exciting work of anatomical pathologists and their major contributions to cancer diagnosis and management, click the following link:

<http://www.rcpa.edu.au/static/File/Asset%20library/PathWay/Disciplines/14.pdf>.