



Special focus this month:

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SMA NEWS



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Interview with Emeritus Professor K Shanmugaratnam

A Histopathologist of international repute, Professor K Shanmugaratnam has over 50 years of experience in the field of Pathology. For his achievements and contributions in this field, he was awarded the Public Administration Gold Medal by the President of Singapore in 1976 and conferred the title of Emeritus Professor by the University of Singapore in 1986.

He was also the Founding Director of the Singapore Cancer Registry and the Founder Member of SMA. In recognition of his

meritorious service to Medicine and the community, he was elected to Honorary Membership of SMA in 1999.

Currently, a Professional Fellow at the National University of Singapore (NUS), Professor K Shanmugaratnam is also an Emeritus Consultant at the National University Hospital (NUH).

His research interests are in Cancer Epidemiology, Head and Neck Pathology and Tumour Nomenclature and Coding.

The views and opinions expressed in all the articles are those of the authors. These are not the views of the Editorial Board nor the SMA Council unless specifically stated so in writing. The contents of the Newsletter are not to be printed in whole or in part without prior written approval of the Editor.

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SMA NEWS: You were extremely active as a student, taking on sporting roles and even becoming President of the Medical College Union, and this did not distract you from outstanding academic results. What motivated you to be so involved in student life?

PROF K SHANMUGARATNAM: My priorities were academic but I enjoyed participating in various sports. My interest and involvement in other aspects of student life began after World War II and the Japanese Occupation, and especially after I was elected President of the Medical College Union.

SMA NEWS: The Medical Society has replaced the Medical College Union and focuses more on student activities. How do you interpret the ‘de-unionising’ of the medical student body? Secondly, with a graduate medical school coming up, do you expect the ‘mature’ students to be more vocal and forthright in discussions with the school administration as per the case in the United States of America?

PROF K SHANMUGARATNAM: The medical student body should be able to express its views and participate fully in matters pertaining to any aspect of student life even if it is not ‘unionised’. On your second question, I doubt if the ‘mature’ students of a graduate medical school would be more vocal and forthright in discussions with the administration than the students who rejoined or entered the Medical College in the 1940s after having lived through the Japanese Occupation.

SMA NEWS: Some of your greatest contributions have been in the field of Pathology. With the advent of ‘e-business’ and telemedicine, coupled with the exploring by the Ministry of Health of outsourcing radiology services, do you see pathology in Singapore changing radically to become regional and even international? Just as we can export services, we can also import medical functions that are not time-sensitive. Do you envisage Singapore’s pathologists becoming more or less relevant in the years to come?

PROF K SHANMUGARATNAM: Telepathology is evolving rapidly but is not well established like teleradiology. Radiologic diagnosis is based on digitalised images which can be e-mailed, immediately and in their entirety, to radiologists in other countries. Pathologic diagnosis, on the other hand, is based on tissues removed surgically and microscopic slides of tissue sections and cell smears.

Telepathology began by e-mailing digital photomicrographs of histologic slides to pathologists in other countries. This was done in order to obtain second opinions on difficult cases and not as a means of outsourcing pathology services. I have myself received several such consultations. This method is inherently defective because opinions based only on photographs of microscopic fields and special staining reactions selected by others would not be complete and could be wrong. This deficiency was substantially reduced by recently developed technology whereby entire microscopic glass slides are converted to high resolution digital slides. The digitalised images of the entire slide can then be remotely viewed on computer monitors, simulating real microscopy; they can also be distributed to other pathologists on DVD. This technology, described as “virtual microscopy”, has been effectively used in education, integrated conferences and proficiency testing but not, as yet, to outsource pathology services. Pathologists are generally more comfortable with real microscopy. Moreover, the automatic scanners for digitalising entire slides at their sources are very expensive. It would be more efficient and cost effective, in my opinion, for histopathologic services that are not time-sensitive to be outsourced or imported by mailing the real materials (microscopic slides and/or paraffin blocks) through international courier services.

I do not envisage Singapore’s pathologists becoming less relevant in the years to come. Further progress in telepathology may indeed enable them to import some diagnostic functions from other countries provided they can offer a service that is competitive in terms of both cost and quality. This will not be easy because telepathology will be a global enterprise, not regional. There are well qualified and highly competent pathologists in the public and private hospitals in Singapore, and more are being trained. The prospect of Singapore becoming a service centre for pathology could be enhanced if our hospitals would compete less among themselves and collaborate more to advance this specialty; they would also need to strengthen their expertise in selected sub-specialties.

SMA NEWS: You were a founding member of the SMA. What are your thoughts on how the SMA has grown over the years and what are your hopes for the Association in the years to come?

PROF K SHANMUGARATNAM: The SMA has grown considerably, in its membership and in the

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range of its activities, since its inauguration in 1959. It has promoted the interests of doctors and their patients and has helped to maintain high professional and ethical standards among its members. The SMA is the only organisation representing the entire medical profession in Singapore and as such has been in the best position to convey the views of the profession to the Ministry of Health. I hope the SMA, in the years to come, will continue to formulate, express and give effect to the views of the profession on all matters concerning the practice of medicine in Singapore.

SMA NEWS: How do you think Singapore Medicine has been changing in the last many decades?

PROF K SHANMUGARATNAM: I first entered the hospital wards as a medical student before World War II. Then, doctors based their diagnoses primarily on the clinical signs and symptoms of diseases with little more than plain X-rays and a limited range of basic laboratory investigations to help them. The treatment that patients received, even for common infective disorders, was often ineffective because antibiotics like penicillin had not been discovered. Surgery, often undertaken under “open ether” anaesthesia, was limited to operations which would now be regarded as relatively simple. The practice of medicine in Singapore has undergone major changes since then. Diseases are now diagnosed far more accurately and treated far more effectively, with help from technologies and medications we could not possibly have imagined. These advances have come at a cost; medical care is now more expensive than ever before.

SMA NEWS: What were some of your fondest memories of being a pathologist?

PROF K SHANMUGARATNAM: My happiest memories are of occasions when correct histologic diagnoses were made in very difficult cases, and especially when they led to successful treatment. I have enjoyed keeping up with developments in my specialty through books, journals and the Internet. And I have derived much pleasure from sharing opinions and experiences with professional colleagues at international meetings.

SMA NEWS: What advice would you give to a young doctor as he/she begins his medical career today?

PROF K SHANMUGARATNAM: Young doctors should be aware of the wide range of careers available in the field of medicine and of the skills and personal attributes needed to succeed in each of them. They should give careful consideration to such job requirements and to their own aspirations and personal circumstances before making a career choice. Having settled on a career, they should keep upgrading their professional competence throughout their working life.

SMA NEWS: Did you ever consider a career outside medicine?

PROF K SHANMUGARATNAM: No, I do not think I did – at least not seriously.

SMA NEWS: What are the breakthroughs and innovations in pathology today that will transform the face of medicine?

PROF K SHANMUGARATNAM: Several innovations have transformed the practice of pathology, but not quite the face of medicine, during the past 50 years. 50 years ago, histopathologic diagnosis was based only on tissue sections stained with haematoxylin and eosin (H&E) and a few supplementary histochemical stains. Enzyme histochemistry and electron microscopy, introduced in the 1950s and 1960s, provided additional information on cell biology and cell structure but these techniques are not used routinely except in a few areas of muscle, kidney and tumour pathology.

The development of immunohistochemistry in the 1970s was a major advance. The expansion and refinement of immunohistochemical techniques and their ever increasing use in routine work have led to remarkable improvements in the accuracy of histologic diagnosis.

The most momentous developments during the past two decades have occurred in the field of molecular pathology. Techniques like filter hybridisation, in situ hybridisation, interphase cytogenetics and, more importantly, the polymerase chain reaction have many applications in the practice of medicine. They have an important role in the investigation of genetically inherited diseases, infections and tumours. Molecular pathology has increased our understanding of disease mechanisms. ■