

**AN INTRODUCTION TO PROF. DATO' DR. TUNKU SARA TUNKU AHMAD**

Tunku Sara binti Tunku Ahmad Yahaya, Professor of Orthopaedic Surgery and member of the unit of upper limb and microsurgery, University Malaya, Kuala Lumpur, Malaysia attended Bukit Nanas Convent, Kuala Lumpur, graduated from the Royal Free Hospital School of Medicine, University of London. She later worked under (now Emeritus) Professor Robert W.H. Pho in Singapore to be trained as a hand surgeon in 1988. After returning from Singapore, she formally began the Hand and Microsurgery Clinic at UH in 1993. A separate team began attending to hand injuries and emergencies around the clock providing full time services for many difficult cases to treat including mangled limbs and amputations. At that time, this specialised service was only provided at the University of Malaya Medical Centre.



She was Head of the Department of Orthopaedic Surgery from 1999 to 2012 and during her term, the number of staff increased to cover all major sub-specialities with considerable research output. The clinical Masters in Orthopaedic Surgery (UM) has grown, and the department now runs more than 12 courses a year.

She was a member of the first Conjoined Board of Orthopaedics and was the Chairman in 2006/2007. She was a member of the Orthopaedic Speciality Credentialling Committee of the Malaysian Medical Council and is an examiner for the sub-speciality fellowships in Orthopaedic Surgery for the Ministry of Health, Malaysia. She was an instructor for the Basic Surgical Skills Course, Royal College of Surgeons, Edinburgh for 6 years. She is a fellow of the Academy of Medicine and College of Surgeons of Malaysia.

She has written numerous papers in local and international journals, and she has published several chapters in books. She is a reviewer for several local, regional and international journals. She has supervised several students for the Masters of Orthopaedic Surgery, Masters and PhDs in research Bioengineering, Medical Science and General Surgery.

Her research interest is obstetrical and traumatic brachial plexus injuries, congenital hand problems, tetraplegic hands, mini external fixators, wound healing and advanced glycation end products. She has won several medals locally and abroad for inventions and has two patent applications. She was the Malaysian Orthopaedic Association President 2006/2007. She was a founder member of the Malaysian Society for Surgery of the Hand and was President for over 6 years. She represented Malaysia internationally in both capacities.

Her mother Elinah, is a Pianist and Musician, her father Tunku Ahmad, an accountant and corporate figure and her husband Zulkifli trained as an Architect and is a property developer and artist. They are blessed with two lively children Nur Aishah and Yaqub. In 2003 she was awarded the Dato' Setia diRaja Kedah by his Royal Highness the Sultan of Kedah.

# “HANDS ON HIPS – THE WHY AND WHEREFORE”

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**“Hands on Hips – the why and wherefore”**

‘Inaugural’ can be defined as a marking of the beginning of a new venture or series, or an address, as of a president, at the beginning of a term of office. The aims and the role of the inaugural professorial lecture have been set out by other Universities worldwide. This type of lecture “or an equivalent appropriate public event” was listed as a duty of a professor “to introduce the new professor to the University community and demonstrate the scope of his or her expected contribution to the University and its stakeholders”. It must be given soon after the appointment of a professor. I should apologise for my tardiness and urge my newly appointed colleagues to uphold this tradition more closely.

Inaugural professorial lectures are also given to promote and to celebrate the academic reputation of professorial staff. It is stated that the lecturers “make an important contribution to the University’s role within the wider community by providing a public forum for leading research and enhancing (the University’s) role as a critic and conscience of society”. In a nutshell, the event should 1) be a public celebration; 2) promote the academic reputation of the staff and scope of contribution to the university; 3) be a public forum for leading research; and 4) enhance the university’s role as a critic and conscience of society.

The first aim would be met by the invitation list, and presence of one or two representatives of the top management. I should make it as entertaining as possible, too. The rest of my lecture should cover the last three aims. Hence my talk is entitled “Hands on Hip – the why and wherefore”. Hands are my passion and profession; hip represents orthopaedics, the subject that I teach, and the profession of my department staff and close colleagues. ‘Hands on hips’ can represent a gesture of display, where we show what we have done and what we are able to do in the future, or a gesture demanding answers as a critic of society. The phrase ‘Why and wherefore’ represents research and learning.

Orthopaedic surgery is a wonderfully simple craft. It involves the musculoskeletal system; the muscles, bones and joints that support the body and enable it to propel itself and

manipulate the environment around to fulfill our needs. In many ways it is a visible part of us, it displays to the rest of the world the way we look, the way we stand and carry ourselves in all our daily activities. It is however, primarily functional. The hand in particular is very beautiful and is built to be used both in very fine and very forceful activities.

In Malaysia, in Hand Surgery and in Orthopaedic Surgery, trauma is a big challenge. Orthopaedic trauma is so common and well-practiced that our masters’ students are very good at managing and performing surgery for trauma. It is the bread and butter of Orthopaedics and it is the biggest part of hand surgery. The rest of the world comes over to learn trauma surgery from us and our Hand Unit has had two fellows from U.K. who came over to work with us to learn about how we treat many conditions but to a large extent they came to practice and improve their trauma skills. We were told by the first fellow that a paper we were reviewing from UK about replanting amputations would have seen a tenth of what we see over here and our own experience was more instructive than that paper. They learned a lot about how to deal with trauma and it improved their confidence to deal with many other conditions.

In Orthopaedic Surgery the reason probably comes on two wheels, the motorbike. In general, road traffic accidents are taking up a huge amount of time, and resources and with reduction in trauma many less urgent problems would be better dealt with. How to do this - some suggestions are to reduce the speed limit and improve policing, and improve public transport. Perhaps more studies need to be done to tell the government what steps would work. Prevention is the role of policymakers and primary care physicians, we can collaborate in research, but Orthopaedic surgeons only deal with injuries when they happen.

Emergency hand surgery is also caused, to a certain extent by motor vehicle accidents but many other incidents occur at the workplace because of ineffective workplace safety measures and still others are created entirely on purpose in fights, robberies and attacks. To our hand team, an amputated hand is a common occurrence. Slash wounds from robberies require perhaps two to three surgical reconstructions to get a reasonable looking and functioning hand. The parang is a weapon of choice it seems.

Whenever society becomes violent or unhappy, we see the result first and most dramatically. We are all happy with effective gun control, otherwise, we would see far more devastating injuries and perhaps many would not live to reach us. We desperately require better policy and a solution to drug addiction. I am sure this is both a cause and effect of the violence that is escalating in our country. Overcrowding of living conditions and poverty must also be a cause, as well as some interracial tension. We all hope policy makers and all others can work towards racial harmony and stability in our culturally rich and diverse country and also try to solve the poverty and poor living conditions of certain segments of society.

Another devastating injury that is caused by road traffic accidents is brachial plexus injuries, where the whole network of nerves giving feeling and movement to the upper limb is injured. We see this injury in two spectrums. One of which is in adults, usually young men thrown off their motorbikes. Our study of the incidence of these injuries shows that they almost exclusively occur in young male motorcyclists. We found in a multicentre trial the incidence of these injuries is 0.27 per 1000 trauma cases presenting to casualty. We do operate on these patients and it is an exhausting problem with long and difficult surgery and not dramatic results. This is a situation where we say that "a little, to a man with nothing, is a lot". Prevention would most certainly be a better idea. Again this leads us to the road traffic conditions.

The other spectrum of this problem is birth injury to infants passing through the birth canal. The shoulder may be too big to pass through the canal smoothly and the neck stretched as the head is pushed away from the shoulder. The child's nerves leading to the upper limb are stretched badly and one limb is paralysed. The child may recover partially, fully or not at all. The general incidence is known to be 1 to 8 per 1000 live births and it is not reducing even in developed countries where obstetrical care is getting better. Thus, many have hypothesized that something happens before the journey through the canal, which is in the womb of the mother. I think it may be very useful to look into the amount of force that is required to injure those nerves and to think about how to detect earlier that this may be a problem. This could be the starting point of good research. In fact research is the bane of many, and again done begrudgingly by many University doctors just to get their promotions. The problem is that people need time to contemplate. In the present time, when our country is becoming more sophisticated and we have some inclination to participate in cutting edge medical research, we have become so busy that many do not have the time to sit and think of what really needs to be discovered. We should probably try to do activities that clear our mind, more frequently.

In general, Orthopaedic Surgeons are not known for their fundamental research, which is research on the basics of what is happening in the body, at the cellular or tissue level. Personally, my first exposure to fundamental research was

during a time when I was carrying out surgery on arteries and veins of patients with kidney failure. I was required to remove a bit of artery and patch a vein over the hole with microsurgical sutures. Truly the arteries of these patients could range from a smooth wall to a wall full of chalky residue and hard as a piece of cardboard. I wondered what could be the differences between the two, and I thought it was a shame that I was throwing the extra pieces of artery away when we could find out something about the wall. So after discussion with a colleague, Prof S.Y. Tan, he explained that when exposed to very high levels of sugar in the blood, the walls of the arteries underwent changes caused by what we called advanced glycation end products. Prof Tan, Prof Umah Kuppusamy, Prof Mahmood Ameen and I decided to study the Advanced Glycation End products, also known as AGE, and antioxidants in the wall of arteries and veins and compare them with vessels of normal people. This led to a grant and several papers, research assistants and supervision of a master's candidate. We found that kidney failure is worse than diabetes for arteries, and were the first to show that veins may reflect the complication better than arteries. Those findings were very useful but not earth-shattering, and that is the problem with fundamental research. It is expensive, laborious and each piece of research may not give dramatic results especially the research with less funding. However, each small piece of the truth adds up and finally be of use to mankind. This journey makes it discouraging for doctors, who are so used to making people better with surgery or medication within hours, days or weeks.

Despite the present research culture, the fundamental research of the department of orthopaedic surgery is advancing well as we have many enthusiastic and clever doctors interested in tissue engineering. This is the technique of taking cells from people, manipulating and growing them and then in their more useful form, replacing them. We are going into this in a big way, for cartilage and tendon. Recently we discussed the importance of general public awareness of research. Perhaps the general public is generally aware of the importance of cancer research, but not of other research. We need them on our side not only to help with funding but also to give us moral support.

Clinical research is no longer the luxury of other countries. Malaysians need to tell the world how we are doing in our practice, what we are doing differently from others and how these new ideas are working. The practice of attending international conferences but not participating is getting less common. Then, we used see many Malaysians at a conference but not to see their names in the programme or to hear their work. Now at last we can see some Malaysians taking an active role. It goes without saying that a University or Ministry of Health would not support a doctor to go for a conference without proof that they have had their paper or poster accepted. So who is footing the bill of all these doctors flying around the world? That is where "the industry" (selling medical equipment, pharmaceuticals and implants) is literally spoiling us, being generous but removing the drive to record and present

our work. Overseas, even a very junior doctor going to a conference would be asked to present something simple, like an interesting case. This is how they cut their teeth and get into research very early on.

I believe the industry practices differently overseas compared with here in the Far East. I don't think they are allowed to hold dialogues for European doctors in another country where the whole group of doctors could have met in their own country and the topic of discussion centres around a product of the company paying for the whole 'dialogue'. Neither are they allowed to select and sponsor certain doctors to overseas conferences. The departments or institutions decide who has performed well enough to deserve a sponsorship. The Malaysian Orthopaedic Association has several times been asked to legitimize an award where the recipient has been selected earlier by the Company. I am glad to say that the MOA did not agree.

I think it is long overdue for the companies to treat us the same way they treat our colleagues overseas, to stop spoiling us and allow us all to grow up. I must say at this point, that this does not by any means apply to all companies, the majority of whom are just trying to introduce their products and make sure we know the benefits and use them whenever they are indicated. We are grateful for the representatives who educate us and also help to run courses that educate many not only on their products but on important topics and techniques that can apply in general.

Dato Dr Mahmood Merican and Datin Ragayah are far sighted enough to realize the value of research and learning. With their help and with Prof Dato Amin Jalaluddin aboard, and a lot of valuable advice from Dato' Toh Puan Dr Aishah Ong, the Yayasan Ortopedik was formed, to help our department achieve our goals in research, service and training. The University has approved the building of NOCERAL (National Orthopaedic Centre of Excellence in Research and Learning) and work has begun to build this complex containing a GMP accredited lab, bone and tissue bank, and three other laboratories and audiovisual and training facilities. Thanks to my husband and Mr Huang Ying How from AKP architects who did the elegant conceptual designs.

Orthopaedics is very special in that there are many devices that can aid us to help patients in wards, at home, and in the operating theatre. We are also fortunate that we do not have to go far for a better device that may help in our work. Several devices have been invented by our own department staff. The finger fixator created by our team with Prof Dato' Goh Sing Yau, a Bioengineer/ Mechanical Engineer has been used on several patients with finger contractures. It was displayed in Geneva and won a silver medal. We have since worked with Prof Nor Azwan and improve the appearance and made it easier to use. This device will be used in patients very soon. We have every hope that it will be even more successful than its earlier prototype.

Our finger fixator will be used in victims of burns and crush injuries, mainly workers in manufacturing industries. Many

of these patients are foreigners. It is very sad for our teams to see these patients, some of whom have only started to work for a few months when the injury crushed their goals and dreams. Not only can they not earn money for their relatives back home but they also are going back with reduced function and a deformity. Despite our best efforts we can only work with what we are given. We had a study looking at occupational-related injury or hazards. We noted that the lack of training before starting of a job was the main reason for these injuries. Our study also showed that many of these workers removed protective guards on the machines so they could insert their hands into the machines to get the job done faster. This study was presented and published in the proceedings of the yearly Malaysian conference on Injuries at the workplace. We hope it made a difference. The Social Security Organization of Malaysia or SOCSO and the National Institute of Occupational Safety and Health (NIOSH) are very concerned. Courses to estimate impairment for the purposes of accurate compensation are run by NIOSH several times a year. These organizations should probably sponsor further research that would benefit all workers. However these organizations only cover Malaysian workers when they are injured and the insurance covering foreigners seems inadequate to us. We hope that the conditions for workers as a whole will improve and that these injuries will soon be something belonging to the past. Then we can start using our new device for fingers that are bent due to disease, not injury.

Hand injuries are not the only problems we see as Orthopaedic surgeons, but all kinds of fractures and soft tissue injury and even sometimes paralysis after a fall at a construction site. These injuries occur to Malaysian as well as foreign workers and this shows that the standards of safety should be looked into. My husband's colleague told us that in Australia, if one fatality occurred on a building site, the site is closed down for investigation. I'm not sure whether this happens here, especially with foreign workers.

These foreign workers are far poorer than our Malaysian patients but pay a higher rate for treatment. Although some kind hearted employers do pay for treatment and help them out, it is all too easy for an employer to rid himself of these workers and ship them off home with minimal financial support. I must also say that we get a great many foreigners also who injure themselves trying to prevent themselves from being arrested for illegal entry or for taking part in illegal activities.

Our team not only collaborates with the engineers but also work closely with oral and maxillofacial Surgeons. In fact my first publication was describing the replacement of the mandible (or jawbone) with the fibula a bone in the leg, using microsurgical techniques. Since then we have carried out about 40 more such cases. This is usually done because tumour affects the jaw. A colleague from South Africa informed me that the main indication for these replacements at home was gunshot wounds. Again I am grateful for the strict gun control laws preventing this here. We tried several techniques over the years. The Fibula is a

straight bone and thus requires to be cut in several places in order to conform to the shape of the jaw. This can be done without damaging the vessel supplying the blood to the whole jaw. The bone can later be used as a base to implant teeth.

We as the academic staff of the university and consultants of the hospital provide links to the various professional societies of which we are members. The Malaysian Orthopaedic Association has grown from a small fellowship of surgeons to a wealthy and healthy society promoting fellowship and the advancement of skills and knowledge amongst its members locally and abroad.

The hand society on the other hand or its correct name to conform to international societies is the Malaysian Society for Surgery of the Hand (MSSH) is a work in progress. It is still very small but recently has grown probably to a critical mass to a point where it is able to help its members to progress. One or two active members have been keeping it alive all these years but last year with the addition of several younger members and the support of the stalwarts, the society continues to have meetings to discuss cases and conditions at members residences, from Klang Valley to Kuantan and to Kota Bharu and beyond. Another turning point was when we went to Hong Kong to represent the society this year. As the President, I was proud to observe Malaysians presenting a handful of papers and posters. We were also offered and agreed to host an International Conference-the Asia Pacific Federation meeting in 2014. This is really a turning point where the Society can collect funds and also become recognised internationally. I hope very much that we will have in the near future many more hand surgeons in Malaysia to give good care to our people and to contribute more to international thinking and consensus.

At the moment, if you have a hand injury, it is a hit and miss situation whether you will land up with someone who is experienced enough and knowledgeable enough to give you good care. The hand and Microsurgery service providers are overwhelmed. I am proud to say we are actually a very active centre. Hospital Kuantan, Hospital Selayang, Hospital Kuala Lumpur, the University Hospitals such as our own Pusat Perubatan University Malaya, Pusat Perubatan University Kebangsaan and Hospital Universiti Sains in Kota Bharu are doing good work, but there is a stark need for more hand and microsurgical services. I must urge the Ministry of health to train more of us. To many young orthopaedic surgeons who are trying desperately to run a good hand service, I must thank you on behalf of our patients because it is a thankless task, especially when you are not credentialed.

I would like to end on a lighter note. A sense of humour can salvage even the direst situations. At a recent conference in the USA, I listened to a wise and contented old orthopaedic surgeon who said "Always laugh with your patients (not at them)". This, I had always done, but after the advice I decided to make a conscious effort to listen to patient's stories and laugh with them. This way, I enjoy my clinics and teaching my students as well. Thanks to University Malaya and University Malaya Medical Centre for giving me the amazing opportunity for me to do what I do. Thank you all for your attention.

The text was presented in an inaugural lecture by Professor Dato' Dr Tunku Sara Tunku Ahmad in Faculty of Medicine, University of Malaya on the 21st April 2008.