

Xifeng Zhang's Yeung's Society Statement

Yeung Fellow's Endoscopic Spine Society

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A Master Surgeon in Spine Minimally Invasive Spine Surgeon (MISS) with Charisma—The Anthony Yeung that I Know.

I met Anthony Yeung during the 2001 Beijing Spine Surgical New Technique Development Workshop on September 21st, 2001. New spine surgical techniques at that time were primarily internal fixation techniques, so I was not originally deeply impressed by Anthony Yeung at first. It was fortuitous that I recorded the lectures with a digital camera and summarized his talk in my spare time, thus saving his lecture content. I recognized later that the technique described by Dr Yeung had merit for minimally invasive access to the lumbar spine and for limiting the surgical morbidity of open surgery. I started treatment for percutaneous spinal tuberculosis in January 2002 and started utilizing percutaneous lumbar discectomy guided by CT in July 2002. I encountered a postoperative infection case and realized that I should no longer “mess around” without seeing the internal pathological situation. It was at that time that I realized the master was just across the ocean and I did not hesitate to seek him out as my teacher. This was the start of learning from Dr Yeung in October 2003.

Anthony Yeung, who I and his friends are directed to call him “Tony,” was born in Wuzhou, Guangxi in 1940. He left China to immigrate to U.S. when China was in a turbulent situation. His mother, an American Citizen, was born in the United States when her father left China during the early migration of Chinese laborers. After laying the foundation learning English while speaking only Chinese, in 2-3 years, he excelled in school and rapidly became a leader among his American colleagues in school and eventually in the professional organizations as he excelled. The challenges he encountered when growing up plus his drive and motivation was instilled by his mother's own drive and sacrifice for her family during the Japanese invasion and in war-torn China during WWII. This gave him the drive, ambition and competitive nature to succeed as he was told that he was now “American”. The direct American “free thinking” personality was fully expressed by his focus, drive, and actions during his personal development.

He is very confident and feels good about himself. He talks face to face with people and is not shy about expressing his opinion. Professionally, He always takes the initiative to discuss his opinions whenever he wants to challenge differing opinions that he feels needs clarification or correction when he participates in domestic and International Spine Conferences. He has been seen in heated debates with Dr Tom Hoogland, another Endoscopic Pioneer with a different technique and philosophy on endoscopic spine surgery and technique. Young Chinese doctors who observed Dr Yeung in these situations say it is such a satisfying thing to observe it. Whenever he's present at the scene in China, he would unapologetically demand that everyone should speak English. Although he regrets not retaining his native Chinese language, his focus in making it in America in one generation for the sake of his family in his newly adopted country caused him to focus on attaining success in one generation. He's never the outsider. The first creed for his Private practice with his spine surgeon son, Chris Yeung, who actually coined the name Desert Institute for Spine Care (DISC) after he joined his father in practice, is: Dr. Yeung , (tongue in cheek) is "always right". In the event that Dr. Yeung is wrong refer to rule one. In general, the statement to his employees is to "Listen to me" and "Follow my lead!"

Anthony Yeung loves his career so much that he states that he is in his "Element". His mother underwent laminectomy when he was a resident due to pain in the waist and legs from congenital small canal and stenosis. And she suffered from iatrogenic spondylolisthesis and lumbar spondylolysis following her surgery. She also suffered from a nerve injury during surgical decompression by his then professor. She spent her later years dependent on a walker and wheelchair. That is what drives him to be dedicated to MISS innovation to limit the adverse effects of surgical intervention in the spine. His spine is also worsening and degenerating as he naturally ages. He recently diagnosed himself with multimodal protrusions in his lumbar intervertebral disc after putting up with prodromal symptoms for a year. He developed lumbar disc herniations, lumbar spinal canal stenosis and lumbar degenerative scoliosis. One can tell from the way he walks that his lumbar spine is not healthy. He tells us that his philosophy of surgical intervention early for "debilitating" pain is relevant to each patient's individual needs, and his focus is on the patho-anatomy of pain seen through his own symptom and treatment process. He opted to follow his own surgical philosophy when the time came to the need for surgery. He had his son, Christopher, a fellowship-trained spine surgeon perform his YESS surgical technique on his father. The main objective in

spine surgical intervention is to alleviate the pain symptoms in a patient's spine instead of over focusing and emphasizing anatomic imaging over symptoms as a staged procedure that will not "burn bridges" for a more invasive procedure that will have more surgical morbidity.

There are two world famous masters in spine MISS and endoscope—Anthony Yeung and Thomas Hoogland. Due to the uneven allocation of medical resources and for economic and historical reasons, the majority of Chinese people have the habits of taking the surgery in public hospitals first and taking surgeries that are covered by the health insurance. The Prosperity of China's spinal MISS is closely related to the coverage of medical insurance and the acceptance of doctors as well as patients all over the world. American national health insurance did not include and pay for reimbursement for spinal endoscope surgery for years because it was not widely adopted or accepted by other spine surgeons for lack of training in academic institutions, for other medical political reasons after training and for economic reasons. It's not until early 2017 that, after intense lobbying by endoscopic companies for insurance re-imburement, a recommendation for national insurance payment of 800 US dollars was adopted. Most American doctors still follow insurance reimbursement for their practice. and depend on hospitals for their surgery. A few now own private hospitals or have their own clinics, which means they may lose many patients with health insurance not covered in their clinics. So even though many doctors know of this technique, few doctors take the time to learn and to develop their skills in endoscopic spine surgery. The failure to popularize American endoscopic spinal MISS techniques, especially utilizing spinal endoscopes, is related to the system. For a long time, Anthony Yeung still sticks to the principle: "To fill in the blanks of conservative treatment and surgeries with visible technique; to use ladder and staging treatment to alleviate the patient's pain." This was adored by American and international patients. There's a constant flow of patients to seek him out for their painful spinal condition although medical insurance may not covered the cost.

Anthony Yeung promoted his idea by participating in academic exchanges actively. He went to China often since 1997 and made indispensable contributions to the development, growth and globalization of China's surgical spine MISS. Tony said frequently recently that he's a Chinese dragon. He came back to China after all the years in the west since he realized he is still Chinese living and thriving in his adopted country. Because of recent current Chinese reform and open policy as well, that will benefit the economic and social world stage development of China. He initially disavowed China at first, after leaving China in

1949, but his psychological return is attributed to a Chinese scholar's trip to the U.S. and that Chinese scholar is Lu Houshan-, former president of Beijing People's Hospital who Tony befriended and was proud of his friend's decision to return to China after his training in Phoenix, even though his family was already in the United States and could have applied to stay, but decided to return to China. After Tony left China, he had little interaction with China, but he had profound communication with Lu Houshan after they met. Anthony realized that it's still deeply embedded in his mind by Chinese culture that he's still Chinese at heart. Although his thinking method and behavioral attitude is American, his appearance is Chinese. His students say that he's a typical "banana person" with yellow skin and white content.

Tony inherited Chinese sense of family. His senior families did not go to nursing home and they spent their later years at his home. Three senior families lived up to over 90 years old and his parents-in-law are still living with him at the age of over 97. Four generations lived under one roof with overflowing happiness. His children, a spine surgeon and dermatologist and their families live close by in Phoenix.

Tony is innovative and leads the current endoscopic trend of spinal MISS with his surgical philosophy. Tony's D.I.S.C. clinic and surgical facility, clinic, now also contains a surgical recovery that can provide hospital like support for low medical risk patients. The center is not big, but it impressed everyone that it cultivated a world famous master. Tony now has hopes to bring his concept to China. The reason is that he's constantly seeking innovation and promoting spine MISS technique not only in concept, but also in evolving technique, using his innovation to augment traditional surgical methods. He takes part in many research and development of spine technique and had many creations himself, especially in spine Endoscopic MISS devices. These creations brought profit to him and were also his facilitates his power.

Tony cares about the life of every one of his students. The hotels they stay in have negotiated discounts and there's snacks and fast food for lunch in his clinic every day. I never paid tuition fee after learning from him after all these years. He took me to watch professional NBA once and Professional American football competition during my learning period of three weeks. I attended a gathering of his Rotary Club and a private party one weekend that had hundreds of his friends and people. I also attended his personal family gatherings. It was easy and happy days learning from him and I enjoyed local life in America.

Individual studying is more crucial after teachers have introduced knowledge to their students. After studying from Tony, the days that I try to digest his extensive knowledge is not easy. That's because there's no surgical instruments or colleagues in China to collaborate and commiserate until now. At first, Chen Yu from Shandong Guanlong Inc. provided an open work endoscopy with the width of 2.7mm and STORZ OEM version. The instruments we used were 2.7mm domestically produced small nucleus pulposus grips with the price of 3,000 RMB per piece. Wang Run from Beijing Ellman Inc. provided a set of Wolf surgical instruments, which enhanced the treatment effect to a new level. Afterwards, I utilized every chance that Tony came to 306 Hospital to learn constantly. I used the chances to go to Phoenix for short-term study.

On the basis of learning YESS, one can see the limitation of YESS technique. Tony, however, refined his YESS technique by updating instruments gradually and taking on open procedure like fusion, just to demonstrate the capabilities of the MIS approach with good training. I didn't have the ability of research and development in China, so I brought up the idea of the safety of the lateral approach. I attended SAS Annual Academic Conference in Berlin in 2008 and had the chance to communicate with others in the big event. Tony said that there had to be inclusion criteria focused first and foremost with the patient's safety. He expressed concern about the extreme lateral approach promoted by Ruetten in a paper he reviewed, so I took the challenge and researched the safety of the extreme lateral approach. Using CT scans to identify the safety parameters of the extreme lateral approach; the criteria came down to 60kg for thin Chinese patients. For those who are heavier than 60kg, they can take lateral approach and for those who are lighter than 60kg, it has to be done with great care. I had some cognition of standardization.

Joimax entered China in 2007 and the year of 2009 was the year of pacing up the steps of learning. I went to Germany to go through TESSYS technique training and Wolf technique training in Wooridul Hospital in South Korea. Based on the different styles of the different schools, the idea of simplified technique style came to me by the end of that year. The refined technique, "easy" technique, on the basis of YESS was gradually brought up. Tony said simple technology is not simple; we need to constantly strive to put the approach and consider individual differences in individual anatomy. Safely use and attain the different surgical approach, style, and finally recognize that direct visualization whether open or with an endoscope and operating under local anesthesia is the ultimate safety factor.

Before and after learning from Tony, I learned all the passageway surgeries, idiopathic scoliosis surgery and degenerative scoliosis surgery. The surgical working realm is the minimal invasive approach and rational treatment options for spinal pain and morbidity of spinal degenerative diseases, spinal infection, spine bone fracture, and spine malformation and spine tumor. Tony focuses on pain management and spinal endoscope and me on open and spinal endoscope and gradually transitioned to spinal endoscope with MISS as an auxiliary support. Anthony's interest is the visible treatment of cause of pain and surgery focused on pain management. This might be the reason why the rate of repair surgery is high up to 13%. But my learning and training background is more prone to open surgery under spinal endoscope, thus developing different methods with different natures to cure lumbar spinal stenosis and minimally invasive therapy of special degenerative scoliosis. However, due to the specificity of China's medical environment, Chinese doctors strictly control the second surgery rate. We had over 1,000 cases of surgeries in 2015 and 2016 and the second repair surgery was lower than 1%.

The process of learning is also a process of digesting information. New approaches were developed based on simple protrusion of intervertebral disc of L4-L5 such as posterior vertebral route approach of L5 and S1 and special approach through interlaminar space. He acknowledged this approach when he saw my approach through dural sac, but he was opposed it as a standard approach and thought it is not ideal for popularization because it took special skills for special experienced surgeons only. So I never introduced this approach in public. He's happier than us when he sees his students making progress. He used every chance possible to advise his students but never tried to oppose their innovations except to offer advice when asked. In one academic conference, he introduced me as the Anthony Yeung of China, which deeply touched me. After he knew that I finished 16 cases of spinal endoscope surgeries, he said that you are no more my student and we are equal colleagues now. He said, if you were in the U.S you would have earned more money than me, and have a great impact on endoscopic spine care.

During the process of learning from Tony, I got to know more about him as a person. His mother said, "Tony is a good man, but he is impatient." To my good, filial piety. He's always in a hurry and tends to yell at people. He's not that kind of person who's easy to do a surgery of two people. So I reserved my own thoughts and avoided doing the same surgery with him in case he yelled at me. Tony only saw my surgery once through live broadcast. That was a spinal endoscope surgery in Xidian clinic in 2016 and it

was well reviewed in general. The only thing that he constructively criticized was that I did not follow his habit to perform intervertebral discography and staining during surgery to get more anatomic intradiscal information that would have helped guide my discectomy to be more selective. My idea was to simplify all the procedures possible as long as the treatment can be ensured. I never used radiography and it's been years since I last used staining. Tony only offered his view as constructive and as my teacher, but he never said that I had to use discography as long as the results were good.

In the process of learning with Tony, I started to train students myself. I classified students to three kinds. The first kind of students are those who listen to teachers all the time. These kinds of students would have a hard time being innovative with the ability to give great contributions. The second kind of students are those who have too many individual thoughts to be the first, and disregard the teachers' teaching completely or they cannot be as good as their teachers. The third kind of student is somewhere in the middle and would listen to the teachers while forging their own ideas using their teaching as a foundation for their continued development. He sees this in his own son, who is a leader and innovator in his own right with his own patents. His student are given the background and basis to carry out things well by combining their own innovative skills and use abilities. This, hopefully, can account for the majority of well-trained doctors.

What are our progresses and our unsatisfactory aspects compared with him? First, we are gradually digesting teacher's idea. Second, we need to further adopt his innovative spirit and he imparts us gifts of his wisdom every time he sees us. Third, he is currently better than us in ladder treatment and details. He would be most proud to see our success. We are in a high demand from cooperation with many problems in pain management concepts that have very little education and treatment techniques that can be good for China by cooperation between the two systems in China. Fourth, he participated in academic communication with the Chinese Medical Association that also represents Traditional Chinese Medicine. Dr Yeung feels that the two disciplines can work together for the benefit of the Chinese people. Patients can choose their physicians whether traditional medicine or western type medicine. There should be no "turf battles solely for economic benefit. Dr Yeung states that if we provide the results, the economic benefits will surely follow. We in China can get some enhanced development and progress because we

have a huge number of patients. Although the trauma case load is huge, the second repair surgery rate is low. What is parallel with our teacher, is that we started day surgery as well.

All in all, Tony's MISS idea opened a path to a free kingdom for me and other MISS surgeons. Everyone is serving the people with great confidence. We found the orientation what we can work hard towards. In review of getting along in the past decades with him, he's given us so much and that I appreciate being his friend and him sincerely.

He has a huge amount of workload and he's accomplished many works to his credit. I've been left too far behind to catch up with him. I think it's impossible for me to finish the goal of 10,000 cases of endoscope surgeries for this life. The majority of Tony's students are Chinese and this is connected with his Chinese complex. It has decades of hard work and consistent guidance as well as education that cultivate the prosperity of China's spinal MISS. Spinal MISS has benefited lots of Chinese patients and they can return to normal life after this. This is attributed to Tony Yeung and his gift to China. I have respect for Anthony forever and he will always be our teacher. The reason why we established the Anthony Yeung Society is because we cherish gratitude towards him in the process of studying with him. We hope that it can help us communicate and benefit Chinese doctors and patients. I am honored to be the first President of this Society.

Newton said he created law of universal gravitation on the basis of Galileo, and like Newton, our creation is based on gradually refined YESS idea, technique and creative spirit. There's an old Chinese saying, "Individual learning is more important after a teacher has introduced knowledge to him or her." Tony extended this idea and he not only introduced knowledge to us but also offered guidance to us, elucidating the new idea of teachers. We got to know more about our learning and how to treat our students. Tony broke the individual workshop operation principle that if a teacher teaches students the teacher will be starved to death. We embrace our future and face our students with a wider mind. The prosperity of China's spinal MISS is closely related to Anthony's style and mind.

Looking into the future, spine MISS surgeons have much work to do. Currently 90% of spinal surgeries are still open approach and there's huge promotion space in terms of quantity and quality for spinal MISS doctors. As a member of Yeung Endoscopic Society, I have the responsibility to inherit

Tony's ideas, techniques, and spirit. We cannot always rely on Tony to help us as before. Our academic club should be an open organization and should allow for entries of group members and students of founders to better promote and develop Tony's idea and technique to serve the Chinese people.

He is a good old man that has taken many surgeries and with Charisma. I am proud to be the first president of this society.

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