

My road on interventional radiology

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Abstract

The author tells a story of how he has become an expert of interventional radiotherapy from a graduate of middle school. In his childhood, he wanted to become an astronomer. However, he was forced to go to the countryside as a school graduate. In 1974, he was enrolled as a "worker-peasant-soldier" student in Henan Medical College. After graduated from the college, he was assigned to the Radiology Department of the First Affiliated Hospital of Henan Medical College where he worked hard as an assistant doctor. Then, he was transferred to Nanfang Hospital (Guangzhou, China) where he achieved great successes and thus has become an expert of interventional radiology.

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Figure 1 Yan-Hao Li, Professor, Director, Committee Member of Chinese Society of Radiology, Associate Director of Interventional Medical Committee of CCRF, Committee Member of Chinese PLA, Department of Interventional Radiology, Nanfang Hospital, Southern Medical University, Guangzhou 510515, Guangdong Province, China.

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Almost all children would be asked the same question: What are you going to do after growth? In my unclear memory during childhood, my ideal was to become an astronomer (Figure 1). It must be a very wonderful job to explore the secret of sky. Unexpectedly, doctor is my life-long career.

In 1974, after 4 years of a hard life in the countryside as a school graduate (school graduates during that time in China meant those who graduated from middle schools were forced to go the rural areas as peasants), I was enrolled as a "worker-peasant-soldier" student in Henan Medical College for a 3-year education (a "worker-peasant-soldier student" at that time meant a student was chosen among the workers, peasants or soldiers not through the present college entrance examination). Those years were an unordinary and sensitive era, foreign friends and Chinese new generation may not understand such special meanings. Unfortunately, in 1977, I was assigned to the Radiology Department of the First Affiliated Hospital of Henan Medical College as a resident physician. In fact, I was much luckier than those who were assigned to rural public health centers. Due to the influence from the medical system of

the former Union of Socialist Soviet Republics, Radiology Department was an assistant department at that time as a third-rate department, and I naturally became a third-rate doctor. The saying of “Ophthalmology Department is golden, Surgery Department is silver, while Radiology Department is a foul water vat”, a real portray of that time. I thought that “since I am here, I may as well stay and make the best of it”, and fortunately passed the postgraduate entrance examination of Diagnostic Radiology with a famous radiologist as my teacher, who had just returned from New York as a visiting scholar studying neuroradiology and brought back many used puncture needles and catheters. Thus, neuroradiology became my research orientation and those equipments were used in studying arteriography diagnosis of posterior fossa lesions. In the middle 1980s, CT was widely used in diagnosis of posterior fossa lesions abroad, and CT scanner was introduced into our country. However, after reading a large number of literatures, I found that interventional radiology just started to grow with a large development prospect, and could fully fulfill my wish to become a surgeon and my interest to confront challenges. With the permission of Professor Li, I changed my research orientation to interventional radiology. However, my supervisor just introduced me to the Seldinger technique and brain angiography, since he was not familiar with interventional radiology. I had to learn and advance by myself. There were many tough difficulties in my animal experiments and clinical practice, which other people could not imagine. During the three postgraduate years, I finished the research about embolization of renal artery with sodium morrhuate, which seems very basic at present. However, in clinical practice, I performed many operations, like embolotherapy for meningioma, renal carcinoma and hepatoma as well as angiography diagnosis and balloon dilatation for Budd-Chiari syndrome.

In 1986, I began to work as the first radiologist engaged in interventional radiology at Nanfang Hospital, where most doctors had little knowledge about the basic concept and clinical application of this range, thus few appropriate cases could be provided for interventional treatment. Fortunately, supported by directors of departments of general surgery and gastroenterology, interventional therapy began to be applied in clinical practice. The initial operation was chemoembolization for hepatoma, followed by percutaneous transhepatic cholangial drainage (PTCD), arteriography diagnosis of alimentary tract hemorrhage and arterial embolization for various tumors. At that time, due to many limits like the difficulty of purchasing intervention materials and the little recognition of interventional radiology by clinical doctors as well as the poor economic capacity of patients, we were just able to do those minimal operations. In 1990s, along with the progressive reform and opening in China, the above limits were gradually overcome, and interventional radiology was rapidly developed. In 1993, we initially created percutaneous left subclavian arterial port-catheter implantation to solve the approach problem of continuous intra-arterial chemotherapeutics perfusion for malignant tumors of

digestive system. In 1994, following the instruction of an English doctor, we performed biliary stent placement. In 1995, with the help of an Italian doctor, we performed TIPS for portal hypertension. During those years, interventional radiology developed very quickly, and various new techniques and equipments were introduced into China. Meanwhile, there was no “turf battle”. Radiologists not only hosted the introduction and development of intervention techniques, but also trained many postgraduates and trainees of interventional radiology to expand the professional team. So far, the Department of Interventional Radiology which is still envied by the colleagues in Western countries has gradually set up its own ward and outpatient clinic.

The year of 2000 is memorable for me, when I together with several colleagues stopped the imaging diagnosis work and specialized in intervention, just with 6 ward beds. Finally, we completely changed from pure “catheterization craftsmen” into interventional clinicians and could be responsible for the whole therapy procedure and manage the patients. Although we made certain preparations before change, the initial transition stage was still full of difficulties and risks. Reception of patients, writing case reports and prescriptions, clinical rounds, on duty, perioperative care and return visit were familiar to the ear but not to the hands. The only solution was endless learning. I remembered that I forgot using gauze to insulate when performing mouth-to-mouth insufflation for rescuing a patient with cardiac and respiratory arrest. When the heart beat and breath of the patient became normal, I felt happy from the heart although mucus from the patient was struck on my lips. Therefore, I thought that I was till very immature as a clinician. Meanwhile, there were three medical disputes during that period. The deficiency of clinical experience was the main cause. Thus, for avoiding those events occurring again, we should and only learn lessons from those disputes.

Through a decade’s practice, we improved largely. At present, there are 21 ward beds and an independent nursing unit, and the number of intervention operations is up to 1800 in our department. The entities we can treat include about 100 kinds of illnesses arranging from the whole body except for the heart and brain (the disease of digestive system almost accounts for 50% of all cases), with the age arranging from 2 to over 80 years. The operation types include big operations like the complicated dissection of aorta and intracavitary abdominal aorta, and small ones like the simple percutaneous sclerosing agent injection for hemangioma. Interventional therapy is a very new science, and interventional clinicians should possess the multidisciplinary knowledge and the comprehensive application capacity of intervention technique.

Along with the popularization of intervention techniques, problems have begun to emerge in our country. The first is that many clinicians from clinical departments treat their patients with intervention techniques but no longer asked for help from interventional clinicians. Interventional clinicians feel that their profession is offended, thus, the “turf battle” happens. Since clinical doctors control the

source of patients, the interventional clinicians cannot help but decrease their work load, even with nothing to do. The second is that due to the remnant old system, the educational background and the ability of domestic radiologists are irregular so that they are not quite able to assume the responsibility of wide-ranging generalization and to perform interventional radiology. Moreover, many doctors who are short of regular training of interventional radiologic techniques treat their patients with interventional therapy, causing a high incidence of intervention complications and medical disputes. In hold that the first problem is how the benefit is distributed among departments and how the doctors transfer their professions during the period of rapidly developed minimally invasive medicine. Though the interventional radiology was exploited and occupied by us, the benefits of other clinical specialties are bound to be affected. Since some of their patients are received by our department, their work load in typical departments of vascular surgery and gastroenterology will decrease. If the two departments send the patients who are proper for interventional therapy to interventional clinicians, their work load would at least decrease 30%-50%, especially the doctors in the two departments are hard to change their professions. Therefore, in those hospitals with undeveloped interventional radiology, the clinical doctors are natural to use intervention techniques in treatment of patients. The problem of all-win in traditional clinical departments and department of interventional radiology as well as patients can be solved properly by long time practicing and experiencing. At present, we not only receive patients but also perform interventional operation for patients from other departments. The second problem may just exist in China.

Interventional colleagues have realized the challenges, thus the appeal of carrying out access system, formulating interventional operation specification and establishing clinical training base of interventional radiology is increasingly on the upsurge. An old saying of "the hammer itself must be hard first" is very reasonable. Only by improving the ability of practitioners, can interventional radiology be stabilized and developed. Otherwise, it will quickly step in regression period, and possibly take many years to go back in revitalization time.

As far as the worldwide interventional radiology is concerned, the golden age of rapid development has been over, and instead, nowadays it is in the plateau of slow development. However, it does not mean that we are satisfied and enjoy the past achievements. In believe that the urgent tasks on hand are to introduce the concept of interventional radiology and the benefits that patients can obtain to the public, to consolidate the achievements and develop new techniques, to strengthen the communication among medical colleagues and establish all-win interventional platforms, and to develop interventional radiology by catering to the future. I will follow a famous saying of an old famous Chinese poet, Qu Yuan, although the road is endless and faraway, I still want to pursue the truth in the world and to devote my remaining years to the great interventional radiology work.

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