

LYMPHEDEMA IN CHINA – EXPERIENCES AND PROSPECTS

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ABSTRACT

The history of prevention and treatment of lymphedema in China is long. Filarial lymphedema was the most common type of the disease in the past with 5 million patients countrywide in the 1950's. Great efforts have gone into controlling filariasis during the past 50 years, and China now has essentially eliminated filariasis. In contrast to the reduction in filarial lymphedema, there has been a trend of increase in secondary lymphedema cases after malignant tumor surgery. Although there are no precise figures on the incidence of lymphedema nationwide, physicians and therapists are in great clinical demand. Traditional Chinese medicine has shown effectiveness for prevention and treatment of inflammation and alleviating swelling. The combination with Western medicine may offer improved methods for lymphedema treatment.

Keywords: Chinese lymphology, lymphedema etiology, lymphatic filariasis, prevention, treatment, breast cancer, traditional Chinese medicine

The 21st International Congress of Lymphology (ICL) has just been closed. It was the first time that the ICL came to China and its influence on the development of lymphology in China may be profound. As a country with the largest population in the world, China may also be the country with the most patients with lymphedema.

Lymphatic Filariasis

The history of prevention and treatment of lymphedema in China is long. The most common cause, lymphatic filariasis, has raged for 1,000 years with China being one of the most seriously affected countries in the world. In the 1950's, 30 million cases of filariasis were distributed in 16 provinces covering more than 800 counties/cities. Approximately 5 million of these cases suffered from clinical manifestations of filariasis including acute lymphadenitis, lymphangitis, lymphedema, elephantiasis, hydrocele, and chyluria (1). Following the formation of the People's Republic of China, the Chinese government paid great attention to the control of filariasis. They formulated a strategic plan for filariasis control and systematically organized the implementation of filariasis investigation and control throughout the country. This program included repeated mass blood surveys and treatment with diethylcarbamazine (DEC) of infected individuals with all costs paid by the government. Eliminating mosquito vector was not the priority in fighting against filariasis in China and use of DDT was not popular. After 50 years of profound and sustained efforts directed by the scientists of National Institute of Parasitic Diseases and the Chinese Center for Disease Control and Prevention, the goal of eliminating filariasis was achieved in 2006. The National Report on Elimination of Lymphatic Filariasis was submitted to the World Health Organization (WHO) by the Ministry of Health in March 2006 (2-4).

The report was accepted and Dr Margaret Chan, Director-General of WHO, wrote: "WHO concludes that China has achieved elimination of lymphatic filariasis as a public health problem, I would like to offer my warm congratulations on achieving this landmark" (May 2007). Thus, China becomes the first country in the world that has eliminated lymphatic filariasis. The majority of filarial lymphedema patients have passed away during the last 50 years and the remaining amicrofilaremic patients (~200,000) are at the ages of 70-80. There have been no new filarial lymphedema patients in our or other recording centers for more than 30 years.

Lymphedema Treatment

During the long fight against filarial lymphedema, people in rural areas devised their own heating treatments for lymphedema using a brick oven which was preheated with charcoal or wood. The patient would place the affected limb in the oven for heating with treatment repeated several times. Although simple, this procedure did help to reduce the edema and the attacks of cellulitis (5). Inspired by this method, Professor Tisheng Chang and Wenyi Huang in Shanghai 9th People's Hospital developed the first infra-red ray heating apparatus in 1964. The combination of heat from the infra-red ray with elastic bandaging, termed "heating and bandaging treatment" produced encouraging results (6), and tens of thousands of patients with primarily filarial lymphedema have been treated with effectiveness in about 70% of cases (7).

There are no precise data on the incidence of lymphedema in China. If the 5 million filarial lymphedema patients with clinical symptoms accounted for even half of the total lymphedema cases, it is reasonable to believe that the incidence of lymphedema had been sharply reduced (>50%) due to the successful elimination of lymphatic filariasis. There are ~90 million cases of parasitic

lymphedema worldwide (8) which may comprise ~ 80% of all lymphedema cases. Elimination of these cases using the Chinese experience might be helpful for the countries and districts where filariasis is prevalent and filarial lymphedema is a major cause of limb deformity.

Lymphedema is a disease that results in irreversible pathological consequences that cause both patients and physicians life-long caring and treatment. The successful elimination of lymphatic filariasis and filarial lymphedema remind us of the importance of prevention in controlling lymphostatic diseases, and our experience demonstrated that prevention of lymphedema is more economic and efficient than the treatment of the existing (and yet to be seen) lymphedema.

The etiology of lymphedema in China has undergone tremendous changes during the past 50 years. On the one hand, there has been a sharp decrease in the incidence of filarial lymphedema but, on the other, an increase in malignant lymphedema and lymphedema caused by surgery and radiation therapy due to the increased incidence of malignant tumors during the last few decades. For example, the incidence of breast cancer in Shanghai has increased by 180% during the past 30 years and is the most common cause of malignant tumors in females. Breast cancer patients account for one in six patients with malignant tumors in the city (9,10). The increased frequency of breast cancer is 1-2% higher in China than in Western countries. The occurrence of upper limb lymphedema among women has risen accordingly, and incidence of arm lymphedema after breast cancer surgery and radiation is estimated to be 20-30% (9), resulting in an increase of about 40,000 – 60,000 new patients with arm lymphedema throughout the country every year. Therefore, the prevention of secondary lymphedema after malignant tumor treatment becomes an important subject that both oncologists and lymphologists need to face. This prevention might be accomplished in two stages: firstly,

at tumor excision; and secondly, at post-operative care. In the past, most oncologic surgeons have paid attention only to survival rate of patients and neglected complications of the surgery. The situation has been progressively changed as more and more surgeons become aware of the lifelong agony and inconvenience of lymphedema to the patients and modify their procedures during tumor excision and lymphadenectomy (11,12). Compared with traditional operation, modified operations have reduced complications (13). For example, sentinel lymph node biopsy has resulted in breast cancer-related lymphedema in 6% of cases compared with 20-30% of the cases treated by traditional procedure (14). Changes in concept, improvements in operative procedures, and better understanding of tumor biology, should allow oncologists in China to make contributions to the prevention of secondary lymphedema.

In the countryside, inflammatory lymphedema accounts for a considerable proportion of the disease. Many of the patients are at a late stage of the disease when they come to the hospital due to ignorance of early diagnosis and proper treatment. At this stage, it is difficult to tell the causes of the edema or to distinguish which symptom appeared first, the edema or the infection. In any case, a long term anti-infection or anti-inflammation therapy should be adopted to prevent and slow down the progress of disease. For this purpose, traditional Chinese medicine has played an important role as it had already been proved in treatment of filarial lymphedema. Chinese medicine, with its history of 5,000 years, has shown unique therapeutic effects in many diseases. Extracts from Chinese herbs have been used in several clinics in the country for about three decades (15-17). Results from over several thousand treated cases have shown a notable effect in reducing the occurrence of cellulitis and diminishing its severity (15). In some cases, the episodes of cellulitis reduced from once a week to 1-2 times per year after one or two courses of

treatment (16,17). Additionally, lymphedema of the limb may diminish as inflammation subsides and periodic treatment of these extracts for several years may, in some cases, result in a remarkable reduction in the size of lymphedematous limbs (16). As main complications of lymphedema, infection and inflammation are challenges for both physicians and patients. The side-effects of long-term antibiotics might deter doctors from prescribing them to patients who regularly present with cellulitis. Thus, the Chinese herbal products provide a cheaper, safer, and more convenient modality for preventing and treating inflammatory lymphedema and several extracts are now under pre-clinical trails.

Chinese Lymphology Today and the Future

The development of clinical lymphology in China may face two important and difficult tasks. It is not unusual to see lymphedema result from unnecessary lymphadenectomy (or lymph nodal biopsy) followed by pathological results of "lymphadenitis." Most of the operations are performed in small clinics, and these simple surgical procedure result in new patients with lymphedema every year. In clinical practice, it is not uncommon to find non-appropriate treatments and serious mistakes that may make edema even worse. For example, surgical procedures that had already been proved ineffective or even harmful for the patient such as split skin graft after debulking operation, partial tissue resection, omental transplantation, and Thompson operations have been practiced in clinics. The microsurgical procedures of muscle, vessel transplantation, and liposuction were performed regardless of the etiology of the diseases. On the patient's side, many do not go to the hospital at the early stages since leg swelling is a smaller problem. Repeated cellulitis forces them to see a doctor, but usually at a late stage of lymphedema. Thus, our first task is to educate and popularize

the professional knowledge of lymphatic diseases among medical workers.

It is quite common for the patients to travel between hospital departments and cities before getting the correct diagnosis and receiving proper treatment. The shortage of specialized medical workers and special clinics is another problem nationwide. There is a severe imbalance between the number of patients and physicians. It can be predicted that with economic development and increased standard of living, there will be even more demand from the patients. Therefore, to have more qualified medical teams should be the second task for lymphedema prevention and treatment. The just completed 21st International Congress of Lymphology has already shown its influence here. More young medical doctors and students ask “what is lymphology?” and “what is lymphedema?” People are again considering this old but long ignored subject. The newer opening up policy of the country gives us the chance to learn the experiences from our foreign colleagues and some exchange programs are ongoing. Although complex/complete decongestive therapy (CDT) treatment has been adopted in some clinics, it can be predicted that the treatment of lymphedema in China will follow the combination of western and traditional Chinese medicine to benefit more and more patients.

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