

BIOGRAPHICAL SKETCH

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NAME: Sung-Yu Chu

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POSITION TITLE: Lecturer of Department of Medical Imaging and Intervention, Chang Gung Memorial Hospital

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Chung-Shan Medical and Dental College	MD	06/1997	Medicine
National Taiwan University Hospital	Internship	1996/1997	Medicine
Chang Gung Memorial Hospital, Linkou Branch	Residency	06/2003	Radiology

A. Personal Statement

The soft tissue of limbs could be divided into fat, muscle and connective tissue by their Hounsfield unit (CT number) in computed tomography (CT). Besides, CT after image processing provided an accurate method to calculate the volume of the limbs or different components. But in clinical practice, volume of fat component in the a specific space, for example, retroperitoneum, must manual selected the region of interest (ROI) in each image of CT by an experienced radiologist, it is time and manpower exhausted. I have extensive experience in image processing and in collaboration with different medical teams. UM morphomic team using automatic calculation method could change the complicated access into an efficient method. The goal of this project is to analyses the lymphedema CT before and after treatment, obtained by CGMH, with morphomic analysis, provided by UM.

1. Wang F, Pan KT, **Chu SY**, Chan KM, Chou HS, Wu TJ, Lee WC. (2011). Preoperative Estimation of the Liver Graft Weight in Adult Right Lobe Living Donor Liver Transplantation Using Maximal Portal Vein Diameters. *Liver transplantation* 17:373-380. (PMID 21445920)
2. Hsiao CH, Chao A, **Chu SY**, Lin KK, Yeung L, Li-Tan DT, Lin JL. (2011). Association of Severity of Conjunctival and Corneal Calcification with All-cause 1-year Mortality in Maintenance Haemodialysis Patients. *Nephrol Dial Transplant* 26(3):1016-23. (PMID 20702534)

B. Positions and Honors

Positions and Employment

1999-2003 Residency, Department of Radiology, CGMH, Linkou

2003- Attending physician, Department of Medical Imaging and Intervention, CGMH, Linkou

2012- Lecturer, CGMH, Linkou

Other Experience and Professional Memberships

2004-2010 Member, Radiological Society of North

America 2004- Member, Radiological Society of Republic
of China

2014- Member, Cardiovascular and Interventional Radiological Society of

Europe 2016- Member, Asia Pacific Society of Cardiovascular and Interventional
Radiology

Honors

C. Contributions to Science

1. Using sonography for preoperative planning of vascularized lymph node (LN) flap

Using LN transfer to treat lymphedema in the canine model was first described by Chen et al in 1990. And till 2009, Lin et al. firstly described the clinical efficacy of vascularized groin LN flap transfer in lymphedema patients after mastectomy. But the number, size, distribution of LNs in the vascularized LN flap could not be easily evaluated before lymphedema operation. I am over 10 years experienced radiologist in computed tomography (CT), magnetic resonance image (MRI) and ultrasonography (US). In daily practice, we always use ultrasound to survey the possibility of LN metastasis, especially in the neck and inguinal region. As compared with CT and MRI, US had some benefits, including no radiation, cheaper and real time to evaluate the vessels in the LN flap. We evaluated 68 patients for preoperative LN flap survey by using US. Finally, we found the submental LN flap and groin LN flap had the higher quantity of LNs as compared with transverse cervical LN flap. After this study, US was the first line image modality for LN flap preoperative evaluation in our teamwork.

1. Patel KM, Chu SY, Huang JJ, Wu CW, Lin CY, Cheng MH (2014). Preplanning Vascularized Lymph Node Transfer with Duplex Ultrasonography: An Evaluation of 3 Donor Sites. *Plast Reconstr Surg Glob Open*; 2(8):e193. (PMID 25426376)

2. Using acoustic radiation force impulse elastography (ARFI) to measure the tissue stiffness in limb lymphedema

Traditional methods to measure the tissue stiffness includes tonometer, noncontact type stiffness imager and SkinFibroMeter. ARFI elastography had been proposed to monitor subcutaneous

tissue stiffness as a treatment response of pneumatic compression for postmasectomy lymphedema. We evaluated 64 patients with lymphedema, proven by lymphoscintigraphy. The result showed that cutaneous and subcutaneous tissues are stiffer in lymphedematous limbs than in unaffected limbs. ARFI is a feasible imaging modality for noninvasive tissue stiffness quantification in limb lymphedema.

1. Chan WH, Huang YL, Lin Chieh, Lin CY, Cheng MH, Chu SY (2018). Acoustic Radiation Force Impulse Elastography: Tissue Stiffness Measurement in Limb Lymphedema. Radiology (in press).

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