


A-S01

PERSONAL INFORMATION		
	Family Name (Last Name)	Baek
	Given Name (First Name)	Jung Hwang
	Official Title	Vice President, Korean Thyroid Association
	Position / Department	Professor/Radiology
	Institute	University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea
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Position and Present Address	1) Professor ■ Department of Radiology and Research Institute of Radiology, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea 2) Elected Hosting Chair ■ 2022 Asian Conference on Tumor Ablation (ACTA) 3) Vice President ■ Korean Thyroid Association (KTA, 2022~2023) 4) President, past (2017~2021) ■ Korean Society of Radiology	
Area of Interest	Image-guided ablation (RF and Ethanol ablation) of Thyroid and Neck Tumors	
Memberships	1989: The Korean Medical Association 1997: The Korean Society of Radiology (Committee member: 2015-2017) 2005: The Korean Society of Thyroid Radiology 2005: The Korean Society of Neuroradiology and Head & Neck Radiology 2007: The Korean Thyroid Association (Committee member: 2007-2010, 2014-2015) 2007: The Korean Society of Image-guided Tumor Ablation (Committeemember: 2012-14) 2008: The Korean Society of Ultrasound in Medicine (Committee member: 2011-2015) 2009: The Asia and Oceania Thyroid Association 2012: The Korean Society of Interventional Radiology 2012: Cardiovascular and Interventional Radiological Society of Europe (CIRSE) 2013: The Asian Conference of Tumor Ablation (ACTA, Committee member: 2013-2017) 2014: Asia-Pacific Association of Imaging-guided Minimally Invasive	

	<p>Therapy in Oncology (AAMIO, board of directors 2014)</p> <p>2015: Asia-Pacific Society of Thyroid Surgery (APTS, member of advisory committee 2015)</p> <p>2016: Asia-Pacific Association of Image-Guided Therapy in Oncology (APAITO, board of directors)</p> <p>2016: The Korean Society of Thyroid Radiology (Vicepresident 2016-2017)</p> <p>2017: The Frontiers in the clinical management of thyroid disease (Committee member)</p> <p>2018: Asia-Pacific Association of Image-Guided Therapy in Oncology (APAITO, member of the Scientific Committee)</p> <p>2018: Asian Federation of Societies for Ultrasound in Medicine and Biology (AFSUMB) and Korean Societies for Ultrasound in Medicine (KSUM) open 2018 (Organizing Committee Member as a Chair of KSThR)</p> <p>2018~: Asian Society of Tumor Ablation (ASTA) Board, Director member</p> <p>2019: Scientific Committee of 1st International Meeting on Thyroid Ultrasound-Guided, Minimally Invasive Therapies</p> <p>2020~2021: Chair, Guideline Committee of Asian Society of Tumor Ablation (ASTA)</p> <p>2021~: Member of Guideline Committee for Radiofrequency ablation and related ultrasound-guided ablation technologies for treatment of benign and malignant thyroid disease: An international multidisciplinary consensus statement of the American Head and Neck Society Endocrine Surgery Section with the Asia Pacific Society of Thyroid Surgery, Associazione Medici Endocrinologi, British Association of Endocrine and Thyroid Surgeons, European Thyroid Association, Italian Society of Endocrine Surgery Units, Korean Society of Thyroid Radiology, Latin American Thyroid Society, and Thyroid Nodules Therapies Association</p> <p>2021~: Advisory member: Korean Society of Radiology, RCCP (Radiology Clinical Competency Project)</p> <p>2021~: Advisory member: Korean Society of Thyroid Radiology (KSThR)</p> <p>2022~: Hosting Chair, Asian Society of Tumor Ablation (ASTA) 2022, Seoul, Korea</p> <p>2022~: Member of Guideline Committee Thermal ablation of thyroid nodule, American Thyroid Association® (ATA)</p>
<p>Publications:</p> <p>Total: 353</p> <p>First & Corresponding author, SCI/SCIE/ESCI: 183</p> <p>Scientific Paper Publication (Co-author): International, 144</p> <p>Other publications: 26</p>	
Representative Publications	<ol style="list-style-type: none"> 1. Complications Encountered in the Treatment of Benign Thyroid Nodules with Ultrasonography-guided Radio frequency Ablation: A Multicenter Study. Radiology 2012;262:335-342. 2. Thyroid Nodules with Initially Nondiagnostic Cytologic Results: The

	<p>Role of Core Needle Biopsy. Radiology 2013 Jul;268(1):274-80.</p> <p>3. Locoregional control of metastatic well differentiated thyroid cancer in the neck by ultrasonography-guided radio frequency ablation. AJR Am J Roentgenol. 2011 Aug;197(2):W331-6.</p> <p>4. Efficacy of additional treatment session of radiofrequency ablation for symptomatic benign thyroid nodules: a prospective randomized study. Radiology 2012 Jun;263(3):909-16.</p> <p>5. Radiofrequency ablation of benign nonfunctioning thyroid nodules: 4-year follow-up results in 111 patients. Eur Radiol 2013 Apr;23(4):1044-9.</p> <p>6. Single-Session Treatment of Benign Cystic Thyroid Nodules with Ethanol Versus Radiofrequency Ablation: A Prospective Randomized Study. Radiology 2013 Oct;269(1):293-300.</p> <p>7. Thyroid Radiofrequency Ablation: An Experimental Study in an Ex-vivo Bovine Liver Model Using the Moving-shot Technique. 2014 Nov-Dec;15(6):836-843.</p> <p>8. Comparative Efficacy of Radiofrequency and Laser Ablation for the Treatment of Benign Thyroid Nodules: Systematic Review Including Traditional Pooling and Bayesian Network Meta-analysis. J Clin Endocrinol Metab 2015 May;100(5):1903-11.</p> <p>9. Efficacy and safety of radiofrequency ablation for treating locoregional recurrence of papillary thyroid cancer. Eur Radiol 2015 Jan;25(1):163-70.</p> <p>10. Radiofrequency Ablation for Autonomously Functioning Thyroid Nodules: A Multicenter Study. Thyroid 2015 Jan;25(1):112-7.</p> <p>11. Ultrasonography Diagnosis and Imaging-Based Management of Thyroid Nodules: Revised Consensus Statement and Recommendations of Korean Society of Thyroid Radiology. Korean JRadiol 2016;17(3):370-395.</p> <p>12. Core Needle Biopsy of the Thyroid: 2016 Consensus Statement and Recommendations from Korean Society of Thyroid Radiology (KSThR). Korean J Radiol 2017 Jan-Feb;18(1):217-237.</p> <p>13. 2017 Thyroid Radiofrequency Ablation Guideline: Korean Society of Thyroid Radiology. Korean J Radiol 2018 Jul-Aug;19(4):632-655.</p>
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A-S01

Inoperable Recurrent Thyroid Cancer: Role of RFA

Jung Hwan Baek, MD, Ph.D

University of Ulsan College of Medicine, Asan Medical Center, Korea

Papillary thyroid carcinoma (PTC) stands as the most prevalent subtype of thyroid malignancy, generally associated with a favorable prognosis. Despite the generally positive outcomes observed in PTC patients, there remains a significant challenge in managing tumor recurrence within the neck region, with reported rates ranging from 20% to 59%. The current gold standard treatment in cases of recurrence approach involves surgical intervention followed by a combination of radioactive iodine therapy and thyroid hormone therapy. However, circumstances where surgery is unfeasible necessitate the exploration of alternative therapeutic avenues, such as radioactive iodine therapy (RAI), external beam radiation therapy (EBRT), and chemotherapy utilizing tyrosine kinase inhibitors (TKIs).

Although surgical intervention is the established standard, complications can escalate due to alterations in neck anatomy resulting from scar tissue formation, particularly in patients subjected to multiple neck dissections. Addressing this challenge, ultrasound (US)-guided radiofrequency ablation (RFA) has emerged as a promising intervention with encouraging outcomes, particularly in cases of recurrent thyroid tumors.

The 2012 and 2017 revised RFA Guidelines from the Korean Society of Thyroid Radiology (KSThR) have endorsed the application of RFA for patients deemed high-risk candidates for surgery or for those who decline repeated surgical procedures. The Guidelines outline two distinct indications for RFA: curative and palliative treatment. As part of palliative care, the Asan Medical Center has proposed a comprehensive combination therapeutic approach, entailing the concurrent utilization of RFA with RAI, RT, and TKIs. This integrated therapeutic strategy holds promise in maximizing treatment efficacy while minimizing associated complications, ultimately contributing to an improved quality of life for patients afflicted by inoperable recurrent thyroid tumors.


For procedural implementation, the utilization of a thin electrode, particularly 19-gauge, presents the advantage of effectively accessing small metastatic tumors via surgical scars. Diverse active tip sizes (ranging from 0.38cm, 0.5cm, 0.7cm, to 1cm) offer tailored flexibility, selected based on tumor dimensions and the status of adjacent critical structures. Notably, smaller active tips, such as 0.38cm and 0.5cm, have demonstrated efficacy in managing small primary cancers, diminutive recurrent tumors, and tumors proximate to vital structures (nerves and esophagus). The adoption of standardized techniques is advised, encompassing (1) local anesthesia using 1% lidocaine (rather than general anesthesia or sedation) for pain control—advantage for monitoring of complication during RFA, (2) the moving-shot technique, (3) the hydro dissection technique utilizing 5% dextrose water, and (4) stent-assisted RFA for cases involving tumors encroaching on the trachea.

This presentation seeks to elucidate the conceptual framework underpinning the two indications (curative and palliative treatment) of RFA for recurrent thyroid cancers. Furthermore, it underscores the added value of employing RFA in conjunction with other therapeutic modalities (RAI, RT, and TKIs) for managing inoperable recurrent thyroid tumors, thereby expanding treatment horizons and enhancing patient quality of life.

References

1. Baek JH, Kim YS, Sung JY, Choi H, Lee JH. Locoregional control of metastatic well-differentiated thyroid cancer by ultrasound-guided radiofrequency ablation. *AJR Am J Roentgenol* 2011;197:W331-336
2. Kim JH, Yoo WS, Park YJ, Park DJ, Yun TJ, Choi SH, et al. Efficacy and Safety of Radiofrequency Ablation for Treatment of Locally Recurrent Thyroid Cancers Smaller than 2 cm. *Radiology* 2015;276:909-918
3. Lim HK, Baek JH, Lee JH, Kim WB, Kim TY, Shong YK, et al. Efficacy and safety of radiofrequency ablation for treating locoregional recurrence from papillary thyroid cancer. *Eur Radiol* 2015;25:163-170
4. Kim JH, Baek JH, Lim HK, Ahn HS, Baek SM, Choi YJ, et al. 2017 Thyroid Radiofrequency Ablation Guideline: Korean Society of Thyroid Radiology. *Korean J Radiol* 2018;19:632-655
5. Park KW, Shin JH, Han BK, Ko EY, Chung JH. Inoperable Symptomatic Recurrent Thyroid Cancers: Preliminary Result of Radiofrequency Ablation. *Ann Surg Oncol* 2011;18:2564-2568

A-S02

PERSONAL INFORMATION		
	Family Name (Last Name)	Lin
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	Official Title	Deputy Director, Professor
	Position / Department	International Medical Center,
	Institute	Kaohsiung Chang Gung Memorial Hospital
	E-Mail	alex@cgmh.org.tw
Education Background	1993-2000	M.D. Department of medicine, Kaohsiung Medical University, Taiwan
	2008-2012	Ph.D. Department of Biomedical Imaging and Radiological Sciences, National Yang-Ming University, Taipei, Taiwan
Current Position	2023/07	Deputy Director, International Medical Center, Kaohsiung Chang Gung Memorial Hospital
	2023/01	Editorial Board Member, Taiwan Journal of Neurology
	2022/10	Present Vice director of Center for Artificial Intelligence in Medicine, Chang Gung Memorial Hospital.
	2022/10	Team leader of International Medical Center, Kaohsiung Chang Gung Memorial Hospital.
	2022/10	Committee of Post-Baccalaureate Medicine, National Sun Yat-sen University. (Representative of Kaohsiung CGMH)
	2021/09	Present Director of Thyroid, head and neck ablation center.
	2021/10	Present Vice director of Thyroid, head and neck ablation Committee of Chang Gung Memorial Hospital.
	2020/07	Deputy Minister, Department of Radiology, Kaohsiung Chang Gung Memorial Hospital.
	2019/07	Professor, Kaohsiung Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taiwan.
	2019/03	Executive member of the council, Radiological society Republic of China (RSROC-)
	2019/02	Executive member of the council, Taiwan Academy of Tumor Ablation (TATA-)
	2017/12	Executive member of the council, Taiwan society of Interventional Radiology (TSIR)
	2016/03	Executive member of the council, Neuroradiological society of Taiwan (NRST-)
	2015/07	Chief, Division of Neuroradiology, Kaohsiung Chang Gung Memorial Hospital, Taiwan.
	2014/05	Associate Professor, Kaohsiung Chang Gung Memorial Hospital,

	<p>2013/05 Chang Gung University College of Medicine, Taiwan. Deputy Secretary-General of the Radiological Society of the Republic of China.</p> <p>2009/08 Lecturer in Kaohsiung Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taiwan.</p> <p>2005/08 Department of Diagnostic Radiology, Division of Neuroradiology, Kaohsiung Chang Gung Memorial Hospital, Taiwan.</p>
Work Experience	<p>2015/07-2020/06 Chief, Division of Neuroradiology, Kaohsiung Chang Gung Memorial Hospital, Taiwan.</p> <p>2001/08-2004/07 Department of Diagnostic Radiology, Resident, Kaohsiung Chang Gung Memorial Hospital, Taiwan</p>
Research Expertise	<ul style="list-style-type: none"> • Magnetic resonance imaging diagnosis and related neuroscience • Head and neck tumor and related treatment • Vertebral shaping • Tumor radiofrequency ablation • AI (artificial intelligence) application
Patent	<ol style="list-style-type: none"> 1. METHOD, NON-TRANSITORY COMPUTER-READABLE MEDIA \ AND APPARATUS FOR EVALUATING PERSONALIZED BRAIN IMAGING. 發明第I679652號 2. SYSTEM AND METHOD OF THOARAT ABNORMAL OBJECT 新型第 M609723號 & 美國發明11197645 / 台灣發明第I798585號 3. AMETHODFOREVALUATINGPARKINSON'SDISEASEMEDICATION RELATEDIMPULSE CONTROL DISORDER VIABRAINWAVEANDASYSTEMTHEREOF 發明第I751772號
Bibliography	Publications: 282 SCI papers

A-S02

Thyroid Thermal Ablation: Starting or Relief Pitcher in Future Cancer Management

Wei-Che Lin

Department of Radiology, Kaohsiung Chang Gung Memorial Hospital

Thyroid Thermal Ablation: Starting or Relief Pitcher in Future Cancer Management
Thyroid ablation has been developed for nearly 20 years, from the treatment of benign tumors to the treatment of recurrent and metastatic thyroid cancer. In recent years, the use of thermal ablation therapy for low-grade thyroid cancer has also been developed in full swing. With the combination with traditional radiation therapy and target therapy, thermal ablation has provided unlimited possibilities for the treatment of thyroid cancer. Whether the thyroid nodules are benign or malignant, there is currently no way to effectively prevent the occurrence of the disease. Minimally invasive treatment of the thyroid, including thermal ablation, will become one of the mainstream treatments for thyroid diseases in the future.

A-S03

PERSONAL INFORMATION		
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	Position / Department	Professor and Chief, Head and Neck Surgery,
	Institute	National Taiwan University Hospital
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	Website	https://scholars.lib.ntu.edu.tw/cris/rp/rp06422?&locale=en
		
Current Position	<ul style="list-style-type: none"> a. Professor and Chief, Head and Neck Surgery, National Taiwan University Hospital b. Professor, Graduate Institute of Clinical Medicine, National Taiwan University c. Deputy Director, Center of Industry-Academia Cooperation d. Secretary-General, Asia-Pacific Society of Thyroid Surgery 	
Selected Honors and Awards:	<ul style="list-style-type: none"> 1. Outstanding Research Award, Ministry of Science and Technology, Taiwan 2. World's Top 2% Scientists 3. Young Investigator Award, Academia Sinica, Taiwan 4. Dr. Wu Da-You Research Award, Ministry of Science and Technology, Taiwan 5. Memorial Medical Award of Dean Chen-Yuan Lee 6. Awardee of the National Talented Youth Award, Taiwan 7. The National Innovation Award, Institute for Biotechnology and Medicine Industry, Ministry of the Interior, Taiwan. (6th& 11th) 8. Outstanding Research Award for Excellence in Innovation of Medical Technology, the National Taiwan University Hospital 9. Award of Best Research Paper, International Symposium of Materials on Regenerative Medicine 10. Award for extraordinary contribution, Euroasian Society of Head and Neck Oncology 11. Award of Future Tech Demo and Breakthrough 12. First case of trans-hairline robotic neck surgery in the world 13. Award of Best Research Paper of Head and Neck Oncology of Professor Tu Shih-Mian's Academic Foundation in Otolaryngology 14. Award of Best Research Paper, Taiwan Society of Ultrasound in Medicine 15. Award of Annual Best Research Paper, Taiwan Otolaryngological Society 16. Award of Professor Tu Shih-Mian's Academic Foundation in Otolaryngology 	

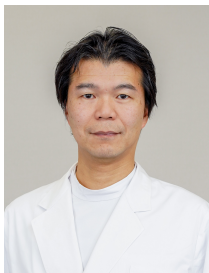
A-S03

Personalized Management of Thyroid Tumors Assisted by Ultrasound-guided Ablation.

*Tsung-Lin Yang MD. PhD. EMBA
Chief and Professor, Head Neck Surgery,
National Taiwan University Hospital, Taipei, Taiwan*

Conventional open surgery is associated with significant esthetic morbidity in clinical practice when treating thyroid diseases. Thyroid tumors are typically removed through transcervical approaches in open surgery, resulting in noticeable scars on the neck that may be disfiguring. Therefore, cosmesis is as important as complete removal of the lesions. Many techniques have been developed to improve the cosmetic outcome for thyroid tumors, each with its own advantages but also specific limitations and constraints. Precision medicine represents an emerging concept aimed at tailoring treatment to each patient individually. The vision and strategy for this innovative approach to thyroid and parathyroid treatment call for a personalized methodology in which the selection of the ablation technique is designed for each individual patient. This selection is based on the clinical profiling of patient information and clinical-pathological indexes related to thyroid diseases. Consequently, each patient will receive informed guidance on the most appropriate personalized strategy, utilizing state-of-the-art techniques in this field. To achieve this goal, surgeons must overcome the challenge of becoming familiar with various radiofrequency ablation approaches and the use of a novel set of surgical tools and equipment, which are distinct from those used in conventional open surgery. The application of precision medicine using radiofrequency ablation for thyroid diseases will place each patient at the center of an individualized therapeutic treatment plan, ultimately revolutionizing the clinical management of thyroid tumors.

A-S04

PERSONAL INFORMATION		
	Family Name (Last Name)	Minami
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	Official Title	Clinical Associate Professor
	Department	Department of Gastroenterology and Hepatology
	Institute	Kindai University Faculty of Medicine
	E-Mail	minkun@med.kindai.ac.jp
Academic Background	1991-1997: M.D., Kindai University Faculty of Medicine 1999-2003: Ph.D., Kindai University Faculty of Medicine	
Major Academic Appointment	April 1997-June 1998: Resident, 1 st Department of Surgery Kindai University Faculty of Medicine July 1998-June 1999: Assistant, Department of Surgery Yao Tokusyukai General Hospital July 1999-March 2003: Ph.D. course of Surgery Kindai University Faculty of Medicine April 2003-April 2006: Clinical Assistant Professor, Department of Gastroenterology and Hepatology Kindai University Faculty of Medicine May 2006-: Clinical Associate Professor, Department of Gastroenterology and Hepatology Kindai University Faculty of Medicine (Addendum) December 2008-March 2009 Visiting Fellow, Department of Radiology University of California, San Diego (UCSD)	
Board Certified Specialist in Japan	Surgery, Gastroenterology, Hepatology, GI Endoscopy, Ultrasonics in Medicine	
Member of Editorial Board	<i>World Journal of Radiology (WJR)</i> , (2009~) <i>Journal of Medical Ultrasonics (JOMU)</i> , (2013~) <i>Liver Cancer</i> , (2015~) <i>Cardio Vascular and Interventional Radiology (CVIR)</i> , (2016~) <i>Cancers</i> , (2020~) <i>Ultrasound in Medicine and Biology (UMB)</i> , (2020~)	

Awards	<p>2016 Grand Prix, Best Abstract Presentation, Asian Conference on Tumor Ablation (ACTA)</p> <p>2017 Distinguished Achievement Award, Asian Conference on Tumor Ablation (ACTA)</p>
Subspecialty	<p>1. Imaging diagnosis on liver (US, CT, MRI, etc.)</p> <p>2. Contrast-enhanced sonography & Fusion imaging</p> <p>3. Thermal ablation for liver cancer (RFA, MWA, etc.)</p> <p>4. Interventional radiology (TACE, PTCD, etc.)</p> <p>5. Endoscopy in diagnosis and treatment (ERCP, EISL/EVL, ESD, etc.)</p>
<p>Yasunori Minami, MD, is Clinical Associate Professor of Gastroenterology and Hepatology at Kindai University Faculty of Medicine in Japan. He trained in Medicine at Kindai University Hospital since 1997, practiced on imaging diagnosis of focal liver lesions and ablation therapy/transcatheter arterial chemoembolization (TACE) for HCC and completed a PhD in Surgery about TACE response assessment in CEUS in 2003. He undertook a visiting fellowship in liver disease at University of California, San Diego (UCSD) Hospital (2008-2009), before returning to Kindai University Hospital.</p> <p>Dr. Minami is now a board member of Asian Conference on Tumor Ablation (ACTA) and a panel member of the Japan Society of Hepatology (JSH)-HCC guideline. He has authored more than 160 original manuscripts in peer-reviewed journals in the field of liver disease, with an <u>H-index of 45 (Google Scholar)</u> and <u>6,452 citations</u>.</p>	

A-S04

Challenging Precise Ablation: US-US Overlay Fusion Guidance

Yasunori Minami MD, PhD.


*Department of Gastroenterology and Hepatology
Kindai University Faculty of Medicine*

Percutaneous thermal ablation plays a key role in the treatment of early hepatocellular carcinoma (HCC). For successful ablation, radiofrequency ablation or microwave ablation have to be performed until the visible HCC have been fully covered by a transient ablative hyperechoic zone on US images. However, it has been reported that the 3-year local tumor progression rates range from 2 to 40%. In general, it has become harder to achieve local control in HCC more than 2 cm in diameter. In fact, there is substantial technical difficulty in covering the entire tumor volume with a sufficient ablative margin, because to do so requires multiple overlapping ablations.

Each ablative hyperechoic zone visually obscures the targeted tumor owing to gas bubble formation. Thus, ablation therapies have more challenges to improve local tumor control.

With advances in imaging technology, image fusion has made it possible to compare and overlay pre- and post-ablation US images. US-US fusion imaging allows side-by-side comparison of the ablative margin, while US-US overlay fusion can visualize the ablative margin because the tumor image is projected onto the ablative hyperechoic zone. The overlay of pre- and post-ablation US images allows easy visualization of the ablative margin during ablation. This feedback helps operators to recognize residual tumors or an insufficient ablative margin area. Some experts have supported that US-US overlay fusion guidance is highly effective for safety margin achievement in local ablation therapy for HCC, promising a lower risk of local tumor progression. Therefore, US-US overlay fusion can accelerate the development of the so-called “precise ablation”. I will introduce the set-up process of US-US overlay fusion guidance in ablation and a simpler technique of US overlay fusion.

A-S05

PERSONAL INFORMATION		
	Family Name (Last Name)	Hsiao
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Education Background	Bachelor of Medicine (M.D.) School of Medicine, Taipei Medical University, 2003-2010 Doctor of Philosophy (Ph.D.) Graduate Institute of Clinical Medicine, College of Medicine, National Taiwan University, 2017-2022	
Professional Career	Resident General Surgery, National Taiwan University Hospital, 2011-2017 Attending Surgeon Department of Surgery, National Taiwan University Hospital Yunlin Branch, 2017-2019 Attending Surgeon Department of Surgery and Traumatology, National Taiwan University Hospital, 2019-present Clinical Instructor Department of Surgery, College of Medicine, National Taiwan University, 2019-2022 Clinical Assistant Professor Department of Surgery, College of Medicine, National Taiwan University, 2022-present Visiting Scholar Department of Surgery, The University of California, San Francisco (UCSF), 2022/09-2023/08	
Publications (the latest 5 articles)	1. Hsiao CY , Yang PC, Huang KW*. Linear radiofrequency ablation using dual switching-control mode achieves rapid and bloodless liver resection, an experimental research. <i>Int J Hyperthermia</i> . 2021;38(1):357-362. 2. Hsiao CY , Ho MC, Ho CM, Wu YM, Lee PH, Hu RH*. Long-term tacrolimus blood trough level and patient survival in adult liver transplantation. <i>J Pers Med</i> . 2021;11(2):90. 3. Hsiao CY , Teng X, Su TH, Lee PH, Kao JH, Huang KW*. Improved	

second harmonic generation and two-photon excitation fluorescence microscopy-based quantitative assessments of liver fibrosis through auto-correction and optimal sampling. *Quant Imaging Med Surg.* 2021;11(1):351-361.

4. **Hsiao CY**, Hu RH, Ho CM, Wu YM, Lee PH, Ho MC*. Surgical Resection Versus Radiofrequency Ablation for Barcelona Clinic Liver Cancer Very Early Stage Hepatocellular Carcinoma: Long-Term Results of a Single-Center Study. *Am J Surg.* 2020;220(4):958-964.
5. **Hsiao CY**, Yang PC, Li X, Huang KW*. Clinical Impact of Irreversible Electroporation Ablation for Unresectable Hilar Cholangiocarcinoma. *Sci Rep.* 2020;10(1):10883.

A-S05

Ultrasound-guided Irreversible Electroporation for Tumor Ablatio

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Introduction: Irreversible electroporation (IRE) is a non-thermal focal therapy that utilizes high voltage electric pulses to permanently rupture the cellular membrane and induce cell death resembling apoptosis. In this multi-center study, we evaluated the safety and efficacy of a protocol based on intra-operative ultrasound-guided IRE in patients with locally advanced pancreatic cancer (LAPC).

Methods: From 2012-2015, we performed laparotomic and laparoscopic IRE under US guidance in a total of 70 patients presenting with Stage III LAPC. These patients were all enrolled into a prospective institutional review board-approved trial. Either Gemcitabine-based or TS-1 (Tegafur, Gimeracil and Oteracil) chemotherapy was applicate for at least 3 months before IRE treatment.

Results: No IRE-related deaths occurred. A median follow-up of 28.1 months showed that 18.6% of patients sustained complications with a median Grade of II (range I-III, no Grade IV or V complications were observed). Six patients (8.6%) experienced local recurrence and 24(34%) experienced distant progression. Overall mean survival from the time of treatment was 25.4 months (median 22.6 months).

Conclusions: Our study suggests that IRE is safe and effective in the control of locally advanced pancreatic cancer. We surmise that the addition of IRE to a chemotherapy regimen may provide a survival advantage.

A-S06

PERSONAL INFORMATION		
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Education Background	1999.07 ~ 2006.06 2005.07 ~ 2006.06 2006.07 ~ 2010.06 2010.07 ~ 2010.12 2011.07 ~ 2013.06 2016.09 ~ 2021.09	Medical degree, NTU School of Medicine Intern, National Taiwan University Hospital, Taiwan Resident, Department of Medical Imaging, NTUH Fellow, Department of Medical Imaging, NTUH Master degree, NTU Graduate Institute of Clinical Medicine Doctor of Philosophy, NTU Graduate Institute of Clinical Medicine
Professional Career	2011.01 ~ 2011.12 2012.01 ~ 2013.12 2014.01 ~ 2014.06 ~ 2015.12 2016.01 ~ 2021.07 2021.07 ~	Attending physician, Department of Medical Imaging, NTUH Vice director, Department of Medical Imaging, NTUH Hsin-Chu Branch Attending, Department of Medical Imaging, NTUH Adjunct lecturer, Department of Radiology, NTU Clinical lecturer, Department of Radiology, NTU Clinical Assistant Professor, Department of Radiology, NTU
Publications (the latest 5 articles)	<ol style="list-style-type: none"> 1. Ultrasound single-phase CBE imaging for monitoring radiofrequency ablation of the liver tumor: A preliminary clinical validation. Wang CY, Zhou Z, Chang YH, Ho MC, Lu CM, Wu CH, Tsui PH. Front Oncol. 2022 Jul 22;12:894246. doi: 10.3389/fonc.2022.894246. eCollection 2022.PMID: 35936752 Free PMC article. (Corresponding author) 2. Quantification of Abdominal Muscle Mass and Diagnosis of Sarcopenia with Cross-Sectional Imaging in Patients with Polycystic Kidney Disease: Correlation with Total Kidney Volume. Wu CH, Lai TS, Chen YM, Chen CM, Yang SC, Liang PC. Diagnostics (Basel). 2022 Mar 20;12(3):755. doi: 10.3390/diagnostics12030755. PMID: 35328308 Free PMC article. (First author) 3. Predictors of changes in preoperative tumor stage between dynamic computed tomography and gadoxetate disodium-enhanced magnetic resonance imaging for hepatocellular carcinoma. Wu CH, Lee YH, Liang PC, Hu RH, Shih TT, Ho MC. J Formos Med Assoc. 2022 Aug;121(8):1550-1559. doi: 10.1016/j.jfma.2021.12.026. Epub 2022 Jan 13.PMID: 35033411 Free article. (First author) 4. Iodized oil computed tomography versus ultrasound-guided radiofrequency ablation for early hepatocellular carcinoma. Wu CH, Liang PC, Su TH, Lin MC, Chang YH, Shih TT, Kao JH. Hepatol Int. 	

	2021 Oct;15(5):1247-1257. doi: 10.1007/s12072-021-10236-0. Epub 2021 Aug 2. PMID: 34338971. (First author)
5.	Total skeletal, psoas and rectus abdominis muscle mass as prognostic factors for patients with advanced hepatocellular carcinoma. Wu CH , Liang PC, Hsu CH, Chang FT, Shao YY, Ting-Fang Shih T. J Formos Med Assoc. 2021 Jan;120(1 Pt 2):559-566. doi: 10.1016/j.jfma.2020.07.005. Epub 2020 Jul 8. PMID: 32651043 Free article. (First author)

A-S06

Combination of CT and Fusion US for HCC Ablation to High-Risk Location

Chih-Horng Wu, M.D., Ph.D.

Department of Medical Imaging and Radiology, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan

When it comes to treating very early- and early-stage hepatocellular carcinoma (HCC), tumor ablation is often the recommended first-line treatment. Typically, thermal ablation is performed percutaneously, with guidance from imaging techniques like ultrasound (US) and computed tomography (CT).

Although US and CT are commonly used by hepatologists, surgeons, and radiologists for tumor ablation guidance, only radiologists have the expertise to combine CT and Fusion US in HCC ablation. This advanced approach involves registering a reference CT/MRI image to the US equipment used during the procedure, selecting anatomic landmarks on both the real-time US and reference CT/MRI, and marking the targeted tumor on the reference image. By doing so, the location of the tumor on the real-time US can then be visualized immediately, improving the visibility of tumors and the operator's confidence in the procedure's feasibility.

Compared to traditional B-mode US guidance, real-time US-CT/MR fusion significantly improves the visibility of HCCs, even those that are not visible on conventional US. At National Taiwan University Hospital, radiologists also use iodized oil (Io) injection through the hepatic artery to tag the liver tumor before ablation. This enables the guidance of US-invisible or high-risk location lesions under CT.

In this presentation, we aim to demonstrate the experience and benefits of combining CT and Fusion US for HCC ablation in high-risk locations. By using this advanced technique, radiologists are able to better visualize tumors, even those that are not visible on conventional US, and provide more precise treatment, ultimately improving patient outcomes.