

中華民國醫用超音波學會 2024 年第二次學術研討會 暨  
第二十屆北區會員代表選舉  
臺大醫學院基礎醫學大樓  
113 年 6 月 30 日(星期日)

會長：楊培銘 教授

節目籌備人員：王秀伯主任、林隆君醫師、蕭勝文主任、吳爵宏主任

內容：消化系、心臟內科、婦產科、骨骼肌肉系統學

會議地點：臺大醫學院基礎醫學大樓 101、102、103、104 講堂

(台北市仁愛路一段一號)

報到處：臺大醫學院基礎醫學大樓 102 講堂外

報到及投票時間：臺大醫學院 203 講堂 12:30-16:00

報到費：會員/會友免費 非會員伍佰元

主辦單位：中華民國醫用超音波學會

**消化系超音波研討會：**

**101 講堂**

Moderator: 王秀伯教授 臺大醫院 孫灼基主任 新光醫院 陳建華主任 台北慈濟醫院			
Time	Topic	speaker	Page
13:30~13:35	Opening Remarks	王秀伯教授 臺大醫院	
13:35~14:05	Endoscopic Ultrasound-guided Biliary Drainage	郭雨庭醫師 臺大醫院	1
14:05~14:35	Application of Intraductal EUS for the Biliopancreatic Disease	孫灼基主任 新光醫院	2
14:35~15:05	EUS Guided Vascular Therapy	林榮鈞醫師 三軍總醫院	2
15:05~15:35	Characteristic of CEH/EUS of Metastatic Liver Malignancy	陳建華主任 台北慈濟醫院	3
15:35~16:05	Role of Abdominal US in the Follow-up of Post-biliopancreatic Procedure	黃永輝醫師 臺大醫院	4
16:05~16:10	Closing Remarks		

**婦產科超音波研討會：**

**102 講堂**

Time	Topic	speaker	
Moderator：蕭勝文主任 台北長庚醫院 王亮凱主任 台北馬偕醫院			
13:30-14:00	生殖內分泌科的骨盆腔影像學	馮敏醫師 台北長庚醫院	5
14:00-14:30	超音波測量應用與羊膜穿刺	吳方慈醫師 馬偕醫院	5
14:30-14:50	Coffee Break		
Moderator：葉長青主任 台北榮民總醫院 陳彥廷醫師 台北長庚醫院			
14:50-15:20	Dandy Walker Malformation	莊雅淳醫師 台北長庚醫院	6
15:20-15:50	超音波在診斷婦科附屬器官腫瘤的應用	劉家豪醫師 台北榮民總醫院	7
15:50-16:00	Discussion		

## 心臟科超音波研討會：

103 講堂

## Evaluating the Right Heart in a Right Way

時間	題目	Speaker	Page
13:25-13:30	Opening Remark	林隆君醫師 臺大醫院	
Moderator: 洪崇烈教授 馬偕紀念醫院			
13:30-14:00	Echocardiographic Assessment of Right Ventricle	宋國慈醫師 馬偕紀念醫院	
Moderator: 王俊力教授 林口長庚醫院			
14:00-14:30	Echocardiographic Assessment of Tricuspid Valve	李廣祚醫師 林口長庚醫院	8
Moderator: 殷偉賢教授 振興醫院			
14:30-15:00	Evaluation of Right Heart before Open Heart Surgery	劉郡庭醫師 振興醫院	
15:00-15:20	Coffee Break		
Moderator: 余文鍾教授 台北榮民總醫院			
15:20-15:50	Echocardiography in Percutaneous Tricuspid Intervention	陳素真醫師 台北榮民總醫院	
Moderator: 陳俊安教授 臺大兒童醫院			
15:50-16:20	Evaluation of Right Heart in Adult Congenital Heart Disease	曾偉杰醫師 臺大兒童醫院	9
16:20-16:25	Closing Remark	秦志輝主任 國泰醫院	

## 骨骼肌肉系統學超音波研討會：

104 講堂

Time	Topic	speaker	Page
Moderator: 吳爵宏主任 新竹臺大分院			
13:30-14:10	MSK Ultrasound on Pediatric Orthopaedics	楊舒媚醫師 新竹臺大分院	10
14:10-14:50	Applications of Deep Learning in MSK Ultrasound	郭柏齡醫師 臺大醫院	10
14:50-15:30	超音波在足踝之應用	楊恩醫師 新竹臺大分院	11

## 專科積分

醫學會	積分	醫學會	積分
台灣醫學會	3.1 點	台灣家庭醫學醫學會	審查
台灣內科醫學會	5 分	台灣外科醫學會	10 分
中華民國癌症醫學會	腫內腫外：A 類 2 分 腫瘤外專：2 分或 1 分	台灣婦產科醫學會	B 類 1 分 (簽到單及簽退單須簽名)
中華民國放射線醫學會	3 分	台灣急救加護醫學會	2 分
台灣消化系醫學會	B 類 3 分	台灣老年學暨老年醫學會	審查
台灣消化系內視鏡醫學會	B 類 1 分	台灣胸腔及心臟血管外科學會	2.5 分
中華民國重症醫學會	2 分	台灣心臟胸腔暨血管麻醉醫學會	審查
台灣消化系外科醫學會	B 類 4 分	台灣老人急重症醫學會	乙類 5 分
中華民國心臟學會	B 類 10 分	台灣復健醫學會	1 點
台灣急診醫學會	審查	中華民國醫事放射學會	3 點
台灣神經學學會	1.5 分	台灣醫事檢驗學會	3 點
中華民國神經放射線醫學會	1 分	公務人員繼續教育認證	4 小時
台灣專科護理師學會	3 點	超音波繼續教育課程認證	25 分
護理師/護士積分認證	3 點	(會員/會友報到即可，不須簽名)	

## **Endoscopic Ultrasound-guided Biliary Drainage**

Yu-Ting Kuo, MD MSc

Division of Endoscopy, Department of Integrated Diagnostics & Therapeutics,  
National Taiwan University College of Medicine, Taipei, Taiwan

Endoscopic retrograde cholangiopancreatography (ERCP) is the preferred method for gaining biliary access, and managing both benign and malignant biliary obstructions. However, biliary cannulation can fail in 4% to 16% of ERCPs. Failure can occur owing to altered anatomy, periampullary diverticulum, ampullary pathology, tumor infiltration of the papilla, or gastric outlet obstruction. When ERCP fails, other options include surgical drainage, percutaneous transhepatic drainage (PTBD), and endoscopic ultrasound-guided biliary drainage (EUS-BD).

EUS-BD has emerged as a safe and effective means of biliary decompression following failed ERCP. Although it is a complicated procedure requiring skilled endoscopists, it has several demonstrated advantages over surgical biliary drainage and PTBD. A recent review found that EUS-BD was associated with better clinical success, fewer adverse events, and a lower rate of reintervention than PTBD. In the majority of these studies, EUS-BD was used as rescue procedure when ERCP has failed. Recently, EUS-BD and ERCP have been compared in randomized, controlled studies for primary biliary drainage for malignant obstruction. All studies showed no significant difference in rates of technical or therapeutic success, or rate of adverse effects. EUS-BD may be a safe and effective alternative to ERCP as a primary means of malignant biliary decompression, but further studies are warranted.

Although EUS-BD is an effective, safe, and innovative technique for biliary drainage when conventional ERCP fails, it is a complicated procedure that requires careful patient selection, highly skilled endoscopists, and has a learning curve. The accepted indications for EUS-BD are failed ERCP, altered anatomy, tumor preventing access into the biliary tree, and contraindication to percutaneous access such as large ascites.

## **Application of Intraductal EUS for the Biliopancreatic Disease**

Cheuk-Kay Sun MD, PhD  
Shin Kong Wu Ho-Su Memorial Hospital

Intraductal ultrasound (IDUS) has emerged as a cornerstone in the diagnostic and therapeutic armamentarium for biliary and pancreatic diseases, ushering in a new era of precision medicine. This comprehensive review explores the diverse applications of IDUS across a spectrum of conditions including choledocholithiasis, biliary strictures, pancreaticobiliary malignancies, and chronic pancreatitis. Through its remarkable high-resolution imaging capabilities, IDUS enables meticulous visualization of the biliary and pancreatic ductal systems, facilitating precise characterization of lesions and anatomical abnormalities. The ability of IDUS to accurately identify and classify strictures enhances diagnostic certainty, guiding subsequent therapeutic interventions such as endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasound-guided fine needle aspiration (EUS-FNA). Moreover, IDUS serves as a valuable real-time tool during therapeutic procedures, ensuring optimal stent placement and drainage efficacy. This abstract underscores the pivotal role of IDUS as a versatile imaging modality, revolutionizing both diagnosis and treatment paradigms in biliary and pancreatic diseases. By providing clinicians with intricate anatomical details and guiding precise interventions, IDUS enhances the delivery of personalized and effective care, ultimately improving patient outcomes and setting the stage for further advancements in precision medicine within this complex clinical domain.

## **EUS Guided Vascular Therapy**

林榮鈞醫師  
三軍總醫院

As a speaker in this field, I'd like to share with you the exciting developments in Endoscopic Ultrasound (EUS) Guided Vascular Therapy. This innovative approach is transforming interventional gastroenterology by offering minimally invasive treatment options for vascular conditions. In this talk, we'll explore the potential applications, benefits, and challenges of EUS guided vascular therapy.

We'll delve into how EUS is being used to diagnose and treat a range of vascular conditions, from varices and vascular malformations to tumors. We'll also discuss how

EUS guides therapeutic interventions such as coiling, sclerotherapy, and embolization.

However, as with any new technology, there are challenges to overcome. We need further research and training to establish the safety, efficacy, and best practices for EUS guided vascular therapy. The potential of this approach to improve patient outcomes is immense, but we must ensure its adoption is underpinned by rigorous clinical trials and robust evidence.

In this talk, my aim is to stimulate discussion and encourage further exploration in this promising field. I look forward to sharing these insights with you and exploring the future of EUS Guided Vascular Therapy together.

### **Characteristic of CEH-EUS of Metastatic Liver Malignancy**

**陳建華主任**  
**台北慈濟醫院**

At present, contrast-enhanced computed tomography (CE-CT) has been widely used as a standard imaging modality to determine the stage of malignancy. However, it cannot detect liver metastases smaller than 1 cm efficiently, considering that the accurate detection rate of liver metastasis by CE-CT is around 50%. Since its first description in 1999, EUS has become an alternative diagnostic modality for diagnosing and detecting liver tumors. The basic technique of EUS, that is, fundamental B-mode EUS (FB-EUS), can detect liver metastases that are undetectable in conventional imaging modalities. In addition, EUS has an advantage over other imaging modalities in that samples for histopathological evaluation can be obtained by fine-needle aspiration (FNA) during this procedure.

Contrast-enhanced imaging technology using microbubble sonographic contrast agents (Ex. Sonazoid) has been recently developed, and contrast-enhanced harmonic EUS (CH-EUS) has emerged as a powerful imaging modality to assess the microvasculature and hemodynamics of target lesions in real time. Several papers have previously been reported that CH-EUS is clinically useful with its ability to visualize microvascular structures of the tumors, it exhibits extremely high sensitivity for detecting small tumors. Different metastatic hepatic malignancy may present their own characters, therefore this lecture focused on the characteristic of CEH-EUS of metastatic liver malignancy.

## **Role of Abdominal US in the Follow-up of Post-biliopancreatic Procedure.**

黃永輝醫師  
臺大醫院綜合診療部

With the advancement of endoscopic techniques and devices, many biliary and pancreatic diseases can now be diagnosed and managed through endoscopy. Procedures such as endoscopic ultrasound-guided fine needle biopsy for pancreatic tumors, or bile duct stenting and lithotripsy via endoscopic retrograde cholangiopancreatography, have become commonplace. However, these procedures carry inevitable complications, including bleeding, pancreatitis, or hollow organ perforation. Transabdominal ultrasound emerges as a valuable tool for detecting post-procedural complications, thanks to its widespread availability, cheap in price, and non-invasive nature. In this topic, I will introduce the techniques and areas of interest in follow-up ultrasound after biliopancreatic procedures.

## **Pelvic Imaging in Reproductive Endocrinology**

**馮敏醫師**  
**長庚醫院婦產部**

統整介紹卵巢庫存量、多囊性卵巢與子宮內膜異位症的臨床評估與影像檢查

### **超音波測量應用與羊膜穿刺**

**吳方慈醫師**  
**淡水馬偕醫院婦產部**

Amniotic fluid serves as a crucial parameter for monitoring fetal conditions during prenatal ultrasound examinations. Excessive amniotic fluid accumulation in the amniotic sac, a condition known as polyhydramnios or hydramnios, and reduced fluid levels, referred to as oligohydramnios, are key indicators of fetal well-being. The prevalence of polyhydramnios or hydramnios is estimated to affect approximately 1 to 2% of pregnancies, while oligohydramnios occurs in less than 1% of preterm pregnancies, with an increased incidence ranging from 2-10% at 40 to 42 weeks of gestational age.

Polyhydramnios is associated with numerous perinatal complications, including placental abruption, preterm labor, preterm prelabor rupture of membranes, congenital anomalies, cord prolapse, abnormal fetal presentation, and postpartum hemorrhage. Conversely, oligohydramnios poses risks such as fetal pulmonary hypoplasia, fetal deformation, umbilical cord compression, and an elevated likelihood of fetal demise. Therefore, it is imperative for healthcare providers to promptly identify and further investigate cases of polyhydramnios or oligohydramnios.

While polyhydramnios can stem from various causes, idiopathic cases represent the most common etiology, accounting for approximately 60-70% of instances. Other mechanisms implicated in polyhydramnios include impaired fetal swallowing and excessive urine production. The etiology of oligohydramnios is equally diverse and contingent upon the trimester of pregnancy. For instance, fetal anomalies are a predominant cause in the second trimester, whereas preterm prelabor rupture of membranes and placental abruption are notable factors. In the third trimester, oligohydramnios is typically associated with preterm prelabor rupture of membranes

and placental insufficiency.

This discourse aims to delve into the diagnosis of polyhydramnios and oligohydramnios, explore the underlying diseases associated with these conditions, discuss potential outcomes, and outline management strategies for antenatal counseling.

## **Dandy Walker Malformation**

莊雅淳醫師

基隆長庚紀念醫院婦產科

Dandy-Walker malformation (DWM) is a malformation involving posterior fossa with an estimated incidence of 1 in 10,000 to 1 in 30,000 birth. The classic triad include agenesis or hypoplasia of vermis, cystic enlargement of the fourth ventricle, and upward displacement of the tentorium and torcula. The major cause of Dandy-Walker malformation is development abnormally of cerebellum vermis which leads to failure of closure of fourth ventricle and let tentorium, straight sinus, and torcula development arrested.

Most of the cases with hypoplastic cerebellum (87%) is detected at second trimester. Enlarge cisterna magna is often found in the axial plane at the level of the transcerebellar diameter under ultrasound accompanied by absent or hypoplastic cerebellum vermis. Ventriculomegaly is also found. A median (sagittal) section of the posterior fossa can also help to make diagnosis whereas a small vermis often suggest vermis agenesis. Measurement of tegmento- vermian angle is also a useful tool of diagnosis DWM. If the angle is over 45 degrees, it is implied it is a case of DWM. It should be aware that antenatal ultrasound may falsely over diagnosed the condition if performed before 18 weeks, as the vermis has not properly formed. Follow up is needed. MRI are similarly accurate with prenatal neurosonography in diagnosis DWM.

DWM may associate with several abnormalities. The most common CNS anomalies associated with DWM include ventriculomegaly, agenesis of the corpus callosum, holoprosencephaly, and encephalocele. The most common non-CNS anomalies are congenital heart disease, polycystic kidneys, and facial clefts. Several chromosomal abnormalities were also reported associating with DWM, including trisomies 13, 18, and 21. Detail ultrasound and diagnostic testing (amniocentesis) with chromosomal microarray analysis (CMA) should be offered when DWM is detected.

Prognosis of children with DWM varies whereas 1/3 of survivors develop normally. Children with no associated CNS or extra-CNS anomalies and with a normal

lobulated vermis have amore favorable neurodevelopmental outcome. Long term follow up is needed when the diagnose is made.

## 超音波在診斷婦科附屬器官腫瘤的應用

劉家豪醫師

臺北榮民總醫院婦女醫學部

The objective of this lecture is to explore the findings from a retrospective study conducted at Taipei Veterans General Hospital comparing the Ovarian-Adnexal Reporting and Data System (O-RADS) and the Assessment of Different NEoplasias in the adneXa (ADNEX) models. These models are pivotal in the stratification of malignancy risk and the decision-making process regarding surgical intervention for women with adnexal masses. Highlighting the approach of using two independent gynecologists along with four additional readers to evaluate the effectiveness of a new quick-access O-RADS flowchart compared to traditional methods. This study included data from 322 patients, focusing on the malignancy rates observed under different O-RADS categories and the diagnostic performance metrics such as the Area Under the Curve (AUC) for both O-RADS and ADNEX models. Special attention will be given to the practical implications of these findings, discussing how these models influence clinical decision-making processes. We also analyze the performance of the O-RADS classification system, especially in its enhanced sensitivity at a predetermined cutoff value. Furthermore, we will discuss the operational efficiencies introduced by the quick-access O-RADS flowchart, evaluating its potential to reduce diagnostic time without compromising accuracy.

## Echocardiographic Assessment of Tricuspid Valve

李廣祚醫師

林口長庚醫院心臟內科

三尖瓣是位於右心房與右心室之間的瓣膜，作為肺循環的通道組成之一，完整的三尖瓣功能對維持右心機能的正常十分重要。有別於左側的二尖瓣，其瓣葉更薄，腱索與乳突肌的分佈也更為獨特。其最常出現的異常為逆流，雖然大部份輕中度患者都不會出現明顯的症狀，對長期預後也沒有顯著影響，然而，嚴重的逆流可能導致右心的擴大，甚至衰竭的發生。

絕大多數的三尖瓣逆流為次發性，即問題非瓣膜的葉片自身，而是瓣環的擴大或心室對腱索的拉扯所引起。這類的次發性逆流，會隨著血管內水份、肺血管阻力、心跳速率、以及左右心室功能產生變化，這也使得我們在超音波的診斷上有著不低的難度。再者，由於較晚起步的研究，與多數患者的無症狀，三尖瓣曾被稱為「沈默的瓣膜」，並因為過度延後的介入處置，導致單純三尖瓣手術的預後不甚理想，更加深了不可貿然進行此手術的長時間刻板印象。不過，這個印象在現今的醫療環境下，已受到相當的挑戰，並可說是不完全恰當的。

以往的三尖瓣手術之所以會令人卻步，主因是那不甚理想的預後。超過五分之一的患者可能在手術後發生嚴重的不良事件，這個比例相對二尖瓣手術來說，是完全無法讓人接受的，導致在歐美前幾個版本的指引中，均只能建議三尖瓣手術較適宜作為在處理左心問題時做合併治療，單純的三尖瓣疾病則以藥物控制為主。不過隨著多項研究的問世，我們理解到單純三尖瓣手術的不良預後，其實起因於過度延後的介入時機。

對於嚴重的次發性三尖瓣逆流，必須在症狀出現、無法用藥物妥善控制時，就要考慮手術治療，以避免進一步發生右心室衰竭，這反而是手術的禁忌症。由此我們可知，正確的評估三尖瓣與右心的結構與功能是最重要的關鍵，而得以讓此實現的工具便是心臟超音波。

本次，我們將藉這個機會，跟與會者共同分享並討論心臟超音波在三尖瓣評估上的重點與心得，期望能藉由更多人的參與，對三尖瓣患者的治療做出貢獻。

## **Evaluation of Right Heart in Adult Congenital Heart Disease**

**曾偉杰醫師  
台大兒童醫院**

In adults with congenital heart disease, right ventricular dysfunction is the important risk factor to poor morbidity and mortality. Echocardiography is the most frequently used, non-invasive tool for cardiac structural and functional evaluation. Through clinical case presentations, we will outline pearls and pitfalls in the assessment of the right heart in ACHD patients using echocardiography. This includes the methods of echocardiographic assessment and its clinical significance in situations of pressure overload, volume overload, and other special scenarios affecting the right heart in adults with congenital heart disease.

## **MSK Ultrasound on Pediatric Orthopaedics**

楊舒媚醫師  
臺大新竹分院復健部

### **Outline**

#### **Torticollis**

- Introduction of congenital muscular torticollis (CMT)
- Classification of torticollis
- Treatment of CMT
- Ultrasonography of CMT
- Cases of CMT

#### **Pediatric MSK ultrasound**

- Bone maturation
- Ossification centers
- Normal sonoanatomy of pediatric MSK tissues
- Common pathologies of pediatrics orthopedics

## **Applications of Deep Learning in Musculoskeletal Ultrasound**

Po-Ling Kuo  
National Taiwan University

Musculoskeletal ultrasound imaging examines relevant anatomical structures such as muscles, tendons, ligaments, fascia, nerves, vessels, joints, and bony structures like spinous processes. Besides capturing static images, it provides real-time visualization of structural movement during dynamic maneuvers, often revealing pathology missed in static conditions. Assessing disease severity usually involves manual measurement of morphological changes, demanding significant human effort and potentially compromising data reliability due to operator variability. Deep learning has emerged as a leading artificial intelligence-based approach for pathology classification and automating biometric measurements. This presentation will explore representative applications of deep learning in musculoskeletal ultrasound images, including our efforts to aid carpal tunnel syndrome evaluation and intervention suggestion, as well as automated muscle mass assessment. We'll also discuss current challenges, limitations, and potential solutions.

## 超音波在足踝之應用

楊恩醫師

臺大新竹分院復健部

The foot is the first structure of the body to contact the ground and bear weight, and its stability affects the transmission of force throughout the body. Ankle pain is a common issue, often recurring, and requires careful evaluation and management from diagnosis to treatment. Traditional physical examinations and X-rays can provide initial guidance but are relatively insufficient for soft tissue assessment.

Ultrasound, however, is highly sensitive to soft tissues and can complement traditional examinations. Additionally, the real-time nature of ultrasound aids in dynamic assessment, providing crucial observations for stability. During the acute injury phase, it offers timely evaluation of tendons and ligaments. The ultrasound evaluation process after an acute injury includes assessing effusion in the ankle joint (tibiotalar and subtalar joints) and evaluating the stability of ligaments such as the anterior talofibular ligament and calcaneofibular ligament.

Furthermore, ultrasound also offers precise evaluation for chronic ankle pain. Many chronic discomforts are due to long-term abnormal foot types, such as flat foot, which can excessively strain the posterior tibial tendon and the spring ligament, causing pain from injury. In these cases, ultrasound plays an important role by providing accurate assessments. Additionally, some pain may result from nerve compression in the foot, causing symptoms. Ultrasound can assess whether there is local nerve compression or swelling, further confirming our differential diagnosis.

In the past decade, elastography in ultrasound has had many applications in soft tissue ultrasound. In the foot and ankle, it can be applied to evaluate the plantar fascia. Studies have found that injured plantar fascia exhibits abnormal softening, significantly correlated with clinical symptoms. This tool also helps us further monitor clinical symptoms.

With a clear diagnosis, ultrasound can further assist in treatment. Ultrasound-guided injections are becoming increasingly important in treatment. With the aid of ultrasound, we can precisely deliver medication to the required structures, minimizing unnecessary tissue injury.

This session will provide recommended ultrasound evaluation procedures for acute injuries, symptom-oriented assessment for chronic injuries, introduce the application of elastography, and discuss treatment methods using ultrasound-guided injections.