



To News Editor
For Immediate Release

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**CUHK is the First in Asia to Introduce the Real-Time 3-Dimensional
Transesophageal Echocardiography to Diagnose Heart Diseases**

Ultrasound of the heart, or echocardiography, is the most commonly used non-invasive imaging test by cardiologists. It helps to diagnose various heart diseases, guide therapy and monitor treatment progress. One of the particularly useful tools is to perform ultrasound examination of the heart by passing an endoscope into the esophagus, which is called transesophageal echocardiography (TEE). Although it has improved the quality of ultrasound images and provided doctors with additional information on the structure of the heart, such as the heart valves problem and the presence of atrial septal defect, this examination has major limitations. As the current TEE technology only provides two-dimensional ultrasound images, i.e. only a cut-plane of the heart at a time, it is unable to provide comprehensive information on the structure and function of the heart which is a three-dimensional organ. On the other hand, accurate and detailed information is very important for cardiologists to estimate disease risk and to plan for the best treatment regimen.

In March 2008, Professor Yu Cheuk-man and Professor Yip Wai-kwok from the Division of Cardiology of Department of Medicine and Therapeutics, and the Institute of Vascular Medicine of The Chinese University of Hong Kong (CUHK) were the first in Asia to introduce a new ultrasound technology to Hong Kong, namely the real-time three-dimensional TEE, or 3D-TEE. The 3D-TEE displays the true three-dimensional structure instantaneously at real-time. Doctors can rotate the heart image to any preferred angle or zoom into structures of clinical interest. The scanning time is also reduced. Since the introduction of the 3D-TEE, CUHK has examined 142 patients in the Prince of Wales Hospital, including 58 patients with valvular heart disease, 33 patients with congenital heart disease and 51 patients with other diagnoses such as suspected endocarditis, searching for cardiac causes of stroke and guidance for catheter ablation procedures of cardiac arrhythmias.

The 3D-TEE is found to have the following unique advantages. Firstly, this new tool is more accurate in assessing the severity of valvular heart disease such as leakage or narrowing of valves, and permits accurate measurement of the size and shape of congenital defects between the atria or ventricles. Secondly, the excellent image quality of 3D-TEE can help cardiac surgeons to plan and decide the type of valve surgery in advance, as cardiologists are able to, for the first time, examine the image of the valve identical to what surgeons will encounter during surgery. Lastly, this new technology is very useful in guiding catheter-based treatment procedures in cardiology such as closure of congenital heart defects and ablation of cardiac arrhythmias.

To share the first-hand experiences with other experts in Asia, the Division of Cardiology and the Institute of Vascular Medicine of CUHK hosts the "First 3D Matrix TEE Conference with Live Scanning and Interactive Imaging Sessions" on 28 and 29 April at the Prince of Wales Hospital. As the first conference of its kind in Asia, it attracts experts from China, Taiwan, Korea, Singapore, Malaysia and Thailand. The conference provides live demonstration on how 3D-TEE is performed, lectures and case-based workshops.



致新聞編輯
請即發放

中大於亞洲率先引入實時三維經食道超聲波診斷心臟疾病

心臟超聲波是最常用的非入侵性心臟影像檢查，它可協助診斷各類心臟疾病，指導及監測治療過程和進展。它的其中一個特點是可透過內視鏡進入食道，以進行心臟超聲波檢查，稱作經食道心臟超聲波檢查（TEE）。雖然這項檢查能提供更佳的超聲波影像及更多心臟結構資料，如心瓣問題和心房間隔缺損，但它仍有很大限制，例如只能提供二維影像（即同一時間只能看到心臟的平面），因此醫生往往未能全面掌握心臟的結構和功能，有礙他們詳細及準確地評估疾病風險和計劃最好的治療方案。

2008年3月，香港中文大學（中大）內科及藥物治療學系心臟科和心腦血管醫學研究所余卓文教授及葉維國教授在亞洲率先引入一項嶄新的超聲波技術－實時三維經食道超聲波，或稱作三維食道超聲波（3D-TEE）。三維食道超聲波可即時呈現心臟的立體結構，醫生可按臨床需要旋轉心臟影像至任何角度或放大個別結構進行檢查，掃瞄時間亦相對較短。自引入此項新技術以來，已為142名沙田威爾斯親王醫院患有各類心臟疾病的患者進行三維食道超聲波檢查，當中58名患有瓣膜疾病，33名患有先天性心臟疾病，另外51名則有其他心臟問題，如懷疑心內膜炎、正在尋找引致中風的心臟病因，或為治療心律不整的消融術進行指導。

總結上述的臨床研究結果，實時三維食道超聲波的優點包括：1. 準確地評估瓣膜疾病的嚴重性，如瓣膜倒流或收縮，並可準確量度心房或心室之間先天性缺損的大小和形狀；2. 高質素的影像為心臟外科醫生提供一個清晰而準確的立體心臟圖像，其像真度媲美進行手術時的真實環境，有助醫生在術前計劃和決定施行哪種瓣膜手術；3. 這項技術可有效指導心導管的治療程序，如先天性心臟缺損閉合術和治療心律不整的消融術。

為了與其他亞洲地區的專家分享有關經驗，中大心臟科和心腦血管醫學研究所於今、明兩天（4月28至29日）假沙田威爾斯親王醫院舉行亞洲首個「三維經食道超聲波會議」。與會專家來自中國、台灣、韓國、星加坡、馬來西亞和泰國。除了演講和個案研討外，會議還設實時三維經食道超聲波的現場示範。

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