

Pre-TAVI CT analysis workshop

日期: 114/11/22

地點: 臺北張榮發基金會 803 室

時間	講題	講師	座長
13:30-13:35	Opening	高憲立	
13:35-13:50	Basic concepts of pre-TAVI CT image analysis by 3 mensio	Edward-CS 蔡依霖	
13:50-14:30	Hands-on (tri-leaflet)		
14:30-15:00	Pit-falls & Crucial points in CT analysis	鄭錦昌	宋思賢
15:00-15:30	Procedure risks reveal by CT images	柯宗佑	宋思賢
15:30-15:40	Coffee break & free hands-on		
15:40-16:10	CT analysis- TAV in SAV	林煥湫	方修御
16:10-16:40	Post TAVI CT -Why & When	李慶威	林茂欣
16:40-17:00	Application of Mini-TEE probe in TAVI	陳素真	黃睦翔
17:00-17:05	Closing	李永在	

11/22 摘要

Basic concepts of pre-TAVI CT image analysis by 3 mensio

Detailed visualization and precise measurements of aortic valve dimensions are critical for the success of transcatheter aortic valve implantation and for the prevention of complications. Currently, multislice computed tomography is the gold standard for assessment of the aortic annulus and surrounding structures to determine the prosthesis size. New technologies such as virtual reality (VR) not only enable 3-dimensional (3D) visualization with the potential to improve understanding of anatomy and pathology but also allow measurements in 3D.

Pit-falls & Crucial points in CT analysis

Pitfalls in CT analysis include motion artifacts, issues with attenuation correction, and misinterpreting normal anatomical variants or physiological uptake. Crucial points for analysis involve understanding how to distinguish these pitfalls from pathology, recognizing normal variants, and correctly identifying artifacts and other confounding factors like patient motion, instrumentation limitations, or the effects of medications and inflammation. A thorough understanding of anatomy and the specific imaging technique is essential for accurate interpretation

Procedure risks reveal by CT images

CT scan images can reveal risks such as allergic reactions to contrast dye, kidney

damage from contrast material, and the risks associated with ionizing radiation exposure, which includes a small but cumulative increased risk of developing cancer over a lifetime, especially with frequent scans. For specific procedures, a head CT may reveal an increased risk of bleeding, stroke, or brain injury, while other CT scans could expose patients to the risks of complications from a specific procedure, such as a pancreatic fistula after a pancreatic surgery.

CT analysis- TAV in SAV

CT analysis for a transcatheter aortic valve (TAV) in a surgical aortic valve (SAV) procedure is a crucial planning step to assess risk and determine the best valve size and position. It involves analyzing pre- and post-SAV images to understand changes in the aortic root, identifying the true internal diameter of the degenerated SAV to guide TAV sizing, and evaluating risks like coronary obstruction using measurements such as valve-to-coronary distance (VTC) and valve-to-aorta distance (VTA). The analysis also considers the type of surgical valve, the new TAV, and any existing leaflet calcification or abnormalities that could impact the outcome.

Post TAVI CT -Why & When

Transcatheter aortic valve implantation (TAVI) has evolved into an alternative procedure to surgical valve replacement for high-risk patients with aortic valve stenosis. Despite technical innovations, there is still a risk of complications during

and after the intervention. After a TAVI procedure, ECG-gated multidetector computed tomography (MDCT) plays an important role in the early diagnosis of local complications. In this article, we explain for the first time how the technical acquisition of MDCT in the region of the aortic root is performed as post-interventional control of the TAVI prosthesis. In the second part normal post-interventional findings of different prosthetic valves as well as classic and uncommon complications in the implant area will be illustrated in several case studies.

Application of Mini-TEE probe in TAVI

A mini-[Transesophageal Echocardiography](#) (mini-TEE) probe is used in [Transcatheter Aortic Valve Implantation](#) (TAVI) to provide real-time imaging for monitoring during the procedure and assessing the results. Its smaller size is particularly beneficial for patients who cannot tolerate a standard TEE probe, such as those with esophageal strictures or who are too frail for general anesthesia, potentially allowing for procedures under local anesthesia or sedation. Mini-TEE probes can provide excellent 2D and 4D imaging, often with the ability to assess valve function and guide intervention, though further validation is ongoing.

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