

## TITLE(全大寫):

# TRANSESOPHAGEOGRAM IDENTIFIES GUIDE WIRE IMPINGEMENT ON THE TRICUSPID VALVE CHORDAE DURING TRANSCATHETER CLOSURE OF THE PERIMEMBRANOUS VENTRICULAR SEPTAL DEFECT

黃有志 莊子瑤 裘品筠 張正成\*

Yu-Chih Huang<sup>1</sup>, Tzu-Yao Chuang<sup>1</sup>, Ping-Yun Chiou<sup>1</sup> and Jeng-Sheng Chang<sup>2\*</sup>

<sup>1</sup> *Department of Pediatrics cardiology, Children's Hospital of China Medical University, Taichung, Taiwan*

<sup>2</sup> *Department of Pediatrics cardiology, Children's Hospital and School of Medicine, China Medical University, Taichung, Taiwan*

\*Email of Corresponding Author : d0669@mail.cmuh.org.tw

## Introduction:

Percutaneous transcatheter device closure of the perimembranous ventricular septal defect (VSD) in proper case is now an alternative to surgical VSD repair. However, some complications during the transcatheter closure procedure might happen, which include mechanical damage to the tricuspid valve (TV) and result in severe regurgitation.

## Method:

A 9-year-old boy of perimembranous type VSD, with LV side 0.5 cm in diameter and RV side 0.3 cm, was admitted for percutaneous device closure. He was well sedated by general anesthesia. The whole procedure was also monitored by transesophageal echocardiography (TEE). The VSD was passed through by a .035, 260cm Terrumo wire from the LV side, which was then snared in the MPA and pull out of the right femoral venous sheath to form an arteriovenous (AV) rail. The fluoroscopy picture of the AV rail showed a straight line. (Fig. 1) However, the 6F long sheath-&-dilator set entering from the venous route met a strong resistance when managing to pass through the VSD. Thereupon, we try to examine carefully the spatial and movement relationships between the guide wire and the tricuspid valve with TEE.

## Result:

TEE revealed a persistent restriction on movements of the septal leaflet, manifesting as a dome-shape deformity in systolic phase (Fig. 2) and a ring-shape deformity in diastolic phase (Fig. 3). Also, the Terrumo wire appeared to be rigidly attached at the septal leaflet and was crossing the plane of TV annulus in all views of TEE, which was very different from

a freely movement of a soft guide wire when it passed through the TV commissure correctly. Therefore, we decided to release the rail, withdraw the wire and re-attempt to cross the VSD. This time the long sheath passed through the VSD smoothly, and an 8-6 mm device of Amplatzer ductal occluder was applied successfully to close the VSD. Both TEE image and the LV cineangiogram showed a secure position of the device. Neither tricuspid nor aortic regurgitation occurred, and EKG was normal.

**Conclusion:**

Even the fluoroscopic picture has shown a straight line forming by the AV rail, an impingement of the wire on the TV chordae can still be possible if the operator can not advance a long sheath through the VSD smoothly. In this case report we demonstrated that by using TEE images carefully to examine the spatial and movement relationships between the guide wire and the TV, the operator team can identify the problem precisely.