

JSPCCS-TSPC Joint Session**■ 2026年7月10日(金) 14:00 ~ 15:00 | ■ 第4会場 (Room 601)****[TSPCJS] JSPCCS-TSPC Joint Session (II-TSPCJS)****Advances in surgical and catheter interventions for Tetralogy of Fallot (TOF) across the lifespan in Taiwan and Japan**

Chair: Masaki Nii (Shizuoka Children's Hospital)

[II-TSPCJS-1] Surgical Management of Tetralogy of Fallot in Japan

○ Takaya Hoashi (Saitama Medical University International Medical Center)

[II-TSPCJS-2] Management of Tetralogy of Fallot from Birth to Adulthood — An Integrated Approach in Taiwan

○ Ming-Tai Lin (Department of Cardiology, National Taiwan University Children's Hospital)

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Since the first intracardiac repair using cardiopulmonary bypass in Japan was performed for Tetralogy of Fallot (TOF) in 1956, Japan has paid particular attention to TOF repair.

Consequently, transpulmonary/atrial approach with preserving the native pulmonary annulus, and TOF repair with minimal right ventriculotomy became widespread early on, providing excellent long-term survival rates with low ventricular lethal arrhythmia rate. On the other hand, a certain proportion of cases that required the transannular patch method developed late pulmonary valve regurgitation, which caused right ventricular remodeling, resulting in arrhythmias and sudden death. To prevent this, pulmonary valve replacement is necessary; however, since the durability of biological pulmonary valves is short, requiring multiple valve replacements over a lifetime. TPVI became clinically available in the 2020s as an alternative treatment.

Since primary repair in symptomatic neonates is associated with low survival and native valve preservation rates, a staged approach beginning with a systemic-pulmonary shunt has been the treatment of choice. The procedure has evolved from the original method of subclavian-to-bronchial artery anastomosis via lateral thoracotomy to a shunt using an ePTFE graft from the ascending aorta or the innominate artery to the central pulmonary artery or the pulmonary trunk via a midline incision; concomitant branch pulmonary artery plasty has been the standard approach. Alternative treatments such as ductal stenting and right ventricular outflow tract stenting are still off-label.

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Advances in surgical and catheter interventions for Tetralogy of Fallot (TOF) across the lifespan in Taiwan and Japan

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[II-TSPCJS-2] Management of Tetralogy of Fallot from Birth to Adulthood — An Integrated Approach in Taiwan

○Ming-Tai Lin (Department of Cardiology, National Taiwan University Children's Hospital)

キーワード：Tetralogy of Fallot、Integrated approach、Lifelong

Tetralogy of Fallot (TOF) is one of the most common cyanotic congenital heart diseases in Taiwan. Over the past three decades, major advances in prenatal diagnosis, neonatal screening, transcatheter intervention, and adult congenital heart disease care have significantly changed its management and outcomes.

This presentation summarizes the integrated TOF management workflow at National Taiwan University Children's Hospital from fetal life to adulthood. Improved fetal echocardiography and nationwide pulse oximetry screening programs now allow earlier diagnosis, planned delivery, and reduced life-threatening neonatal presentations. For symptomatic neonates with severe right ventricular outflow tract obstruction, transcatheter staged palliation, including right ventricular outflow tract stenting, has emerged as an alternative to surgical shunts.

As long-term survival after TOF repair now exceeds 95%, attention has shifted toward chronic pulmonary regurgitation, right ventricular dysfunction, arrhythmia, and sudden cardiac death in adulthood. Our institutional workflow integrates cardiac MRI, cardiopulmonary exercise testing, electrophysiologic evaluation, and hemodynamic assessment to guide individualized treatment strategies. Since the first transcatheter pulmonary valve implantation (PPVI) in Taiwan in 2015, our center has accumulated substantial experience with Melody, Venus P, and Pulsta valves, demonstrating favorable midterm outcomes.

The contemporary management of TOF has evolved from survival-focused treatment toward lifelong multidisciplinary care aimed at optimizing long-term functional outcomes and quality of life