Surgeon's concerns related to Device implantation in ACHD (ASD, Pulmonary valve)

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Remarkable improvement in the survival of patients with congenital heart disease (CHD) has occurred over the past 50 years since reparative surgery has become common place. On the other hand, many types of CHD have been grown up to adult age. However, such suitable or less symptomatic condition could not persist throughout their life. It is well known that the mortality of CHD dramatically decreased for past few decades, however especially in adult patients with CHD, mortality has been increasing. In the treatment of ACHD, surgery itself is associated with significant risks due to complications from multiple reoperations and the presence of multiple organ failure. For these reasons, surgery itself is sometimes discouraged. On the other hand, catheter intervention is indicated in situations where surgical treatment is challenging, and excellent outcome has been reported. Catheter intervention is now widely applied as the first line of treatment for ASD. However, it is important to have a thorough conference with the heart team in order to choose the appropriate treatment with the aim of maximizing efficacy and minimizing complications. In this presentation, I would like to discuss transcatheter ASD closure (tASD) and transcatheter pulmonary valve implantation (TPVI), which has recently been approved in Japan, from a surgeon's perspective.

[tASD]

Transcatheter closure of a secundum atrial septal defect is the current first-line treatment strategy for ASD as it is less invasive than surgical closure of ASD (sASD).

Surgeon’s concern

1. Atrial fibrillation: A large ASD was a potential risk factor for development of AF
2. Cardiac erosion after tASD: Oversized device deployment and a deficient aortic rim are accepted factors potentially causing cardiac erosion.
3. ASD with pulmonary hypertension: management after tASD
4. Infection after tASD

[TPVI]

This procedure requires a right ventricular outflow tract (RVOT) conduit and implantation of a bioprosthetic or artificial pulmonary valve. After biventricular repair with an external conduit, conduit obstruction and progressive pulmonary regurgitation (PR) eventually necessitate repeat surgery. Transcatheter pulmonary valve implantation (TPVI) is an alternative approach for these patients. In Japan, this technique is still in the trial stage, so I would like to discuss and compare surgical methods and indications.