



Developing MICS on middle Indonesia region: is it possible?

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Introduction

Indonesia's archipelagic geography creates disparities in access to advanced cardiac care, with minimally invasive cardiac surgery (MICS) largely concentrated in major centers such as Jakarta. Development in the middle region particularly Kalimantan has been limited by infrastructure, training capacity, and institutional preparedness.

RSUD Abdul Wahab Sjahranie has initiated a structured MICS program supported by multidisciplinary collaboration and standardized patient selection. This study reports our early outcomes within a resource-constrained regional setting.

Method

- Retrospective MICS study (Feb–Dec 2025), n = 22
- Procedures: MV repair/replacement, ASD closure, TV repair, LA myxoma excision, CABG (TCRAT)
- Approach: right anterior transaxillary / mini-thoracotomy
- CPB: femoral artery + jugular–femoral venous drainage
- Cardioplegia: antegrade Del Nido
- Early postop: echocardiography + clinical evaluation

Results

Table 1. operative results

Procedure	Percentage	Operative Details
MICS-CABG / TCRAT-CABG	60%	LIMA to LAD graft routinely used; saphenous vein grafts for additional targets
MICS Mitral Valve Replacement (MVR)	23%	Performed via right anterior trans-axillary or mini-thoracotomy
Left Atrial Myxoma Excision	10%	Performed via right anterior trans-axillary or mini-thoracotomy
ASD Closure ± Tricuspid Repair	7%	Complete closure achieved

Figure 1. Cardiac Surgery Team



Figure 3. Right Anterior Thoracotomy

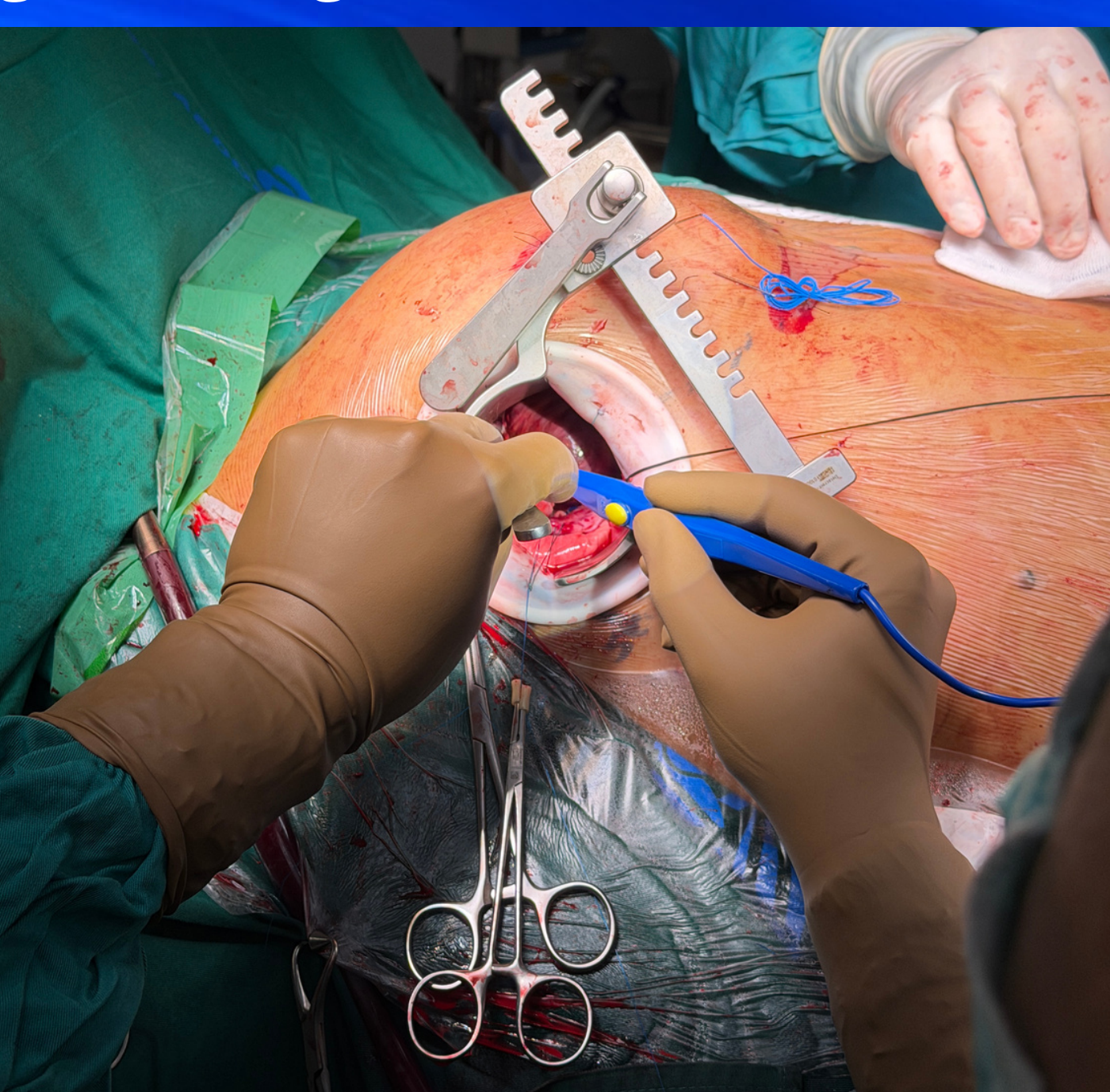


Figure 2. Cardiac Surgery during TCRAT



Figure 4. Harvest LIMA



Table 2. operative Outcome

Outcome	Variable	Value
Intraoperative	Conversion to sternotomy	0%
	Emergent re-exploration	0%
Postoperative	Mean ICU stay	1.8 days
	Mean hospital stay	5.2 days
Echocardiographic	Prosthetic valve function	Good
	ASD closure	Complete
	Tumor excision	Complete
	Ventricular function	Preserved

MICS can be safely implemented in a developing regional center, reinforcing RSUD Abdul Wahab Sjahranie's emerging role in advancing minimally invasive cardiac surgery across Kalimantan.