

# Totally Thoracoscopic Left Atrial Appendage Closure And Ablation In Nonvalvular Atrial Fibrillation

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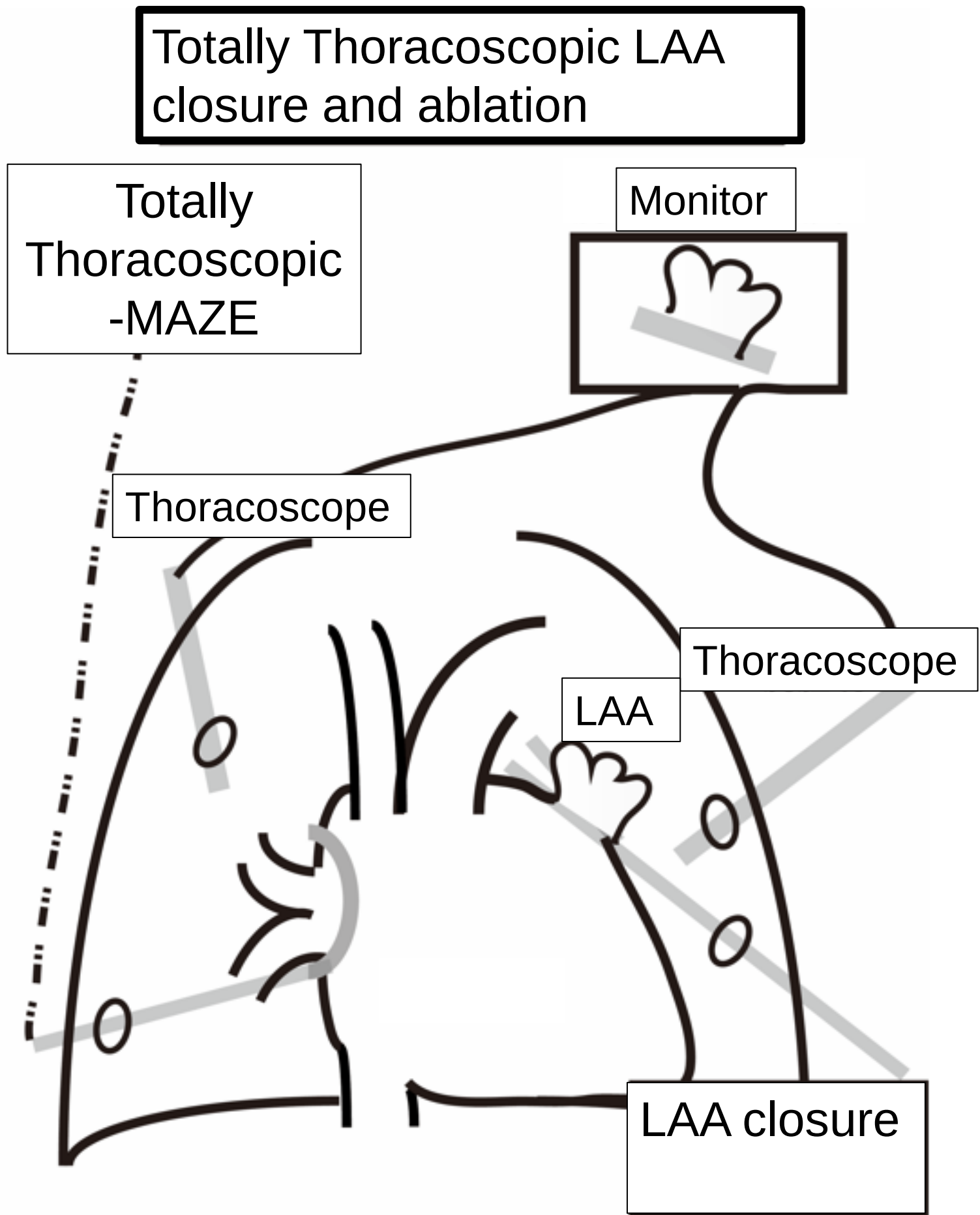
## Background

Thoracoscopic left atrial appendage (LAA) closure is aimed to prevent stroke for patients with non-valvular atrial fibrillation(AF). The rate of cerebrovascular stroke after thoracoscopic LAA closure was very low (0.25-0.5% *Ohtsuka T,et al. Heart Rhythm 15:1314-1320, 2018, Laar C, et al. JACC EP 4:893-901, 2018, Salzberg SP, et al.JAFIB 5:2019* ) even after discontinuation of anticoagulation.

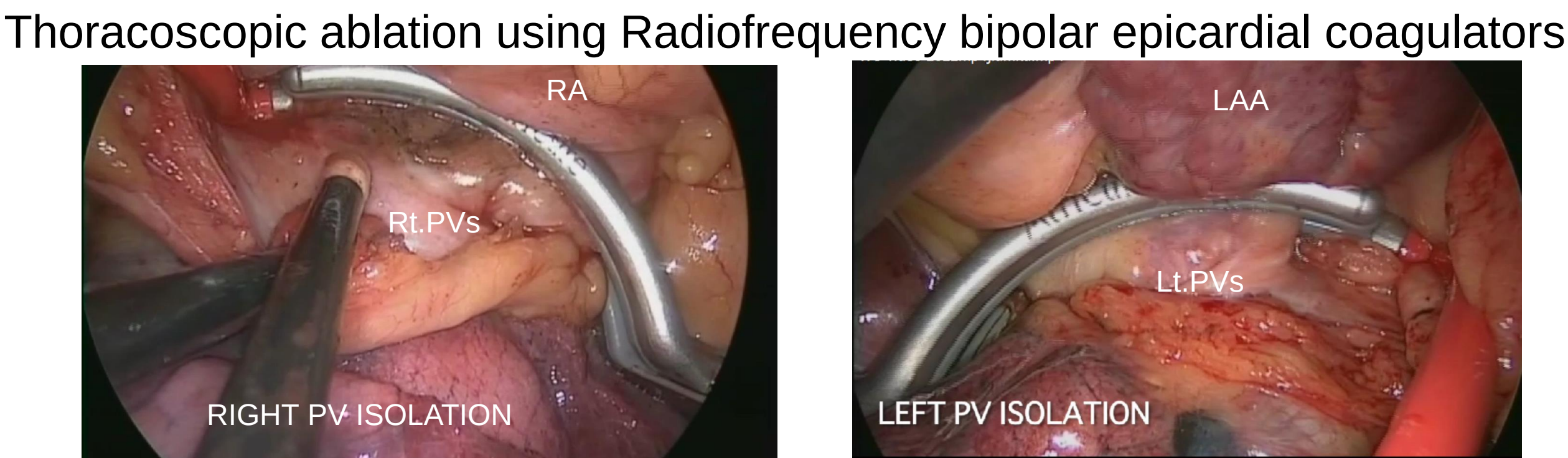
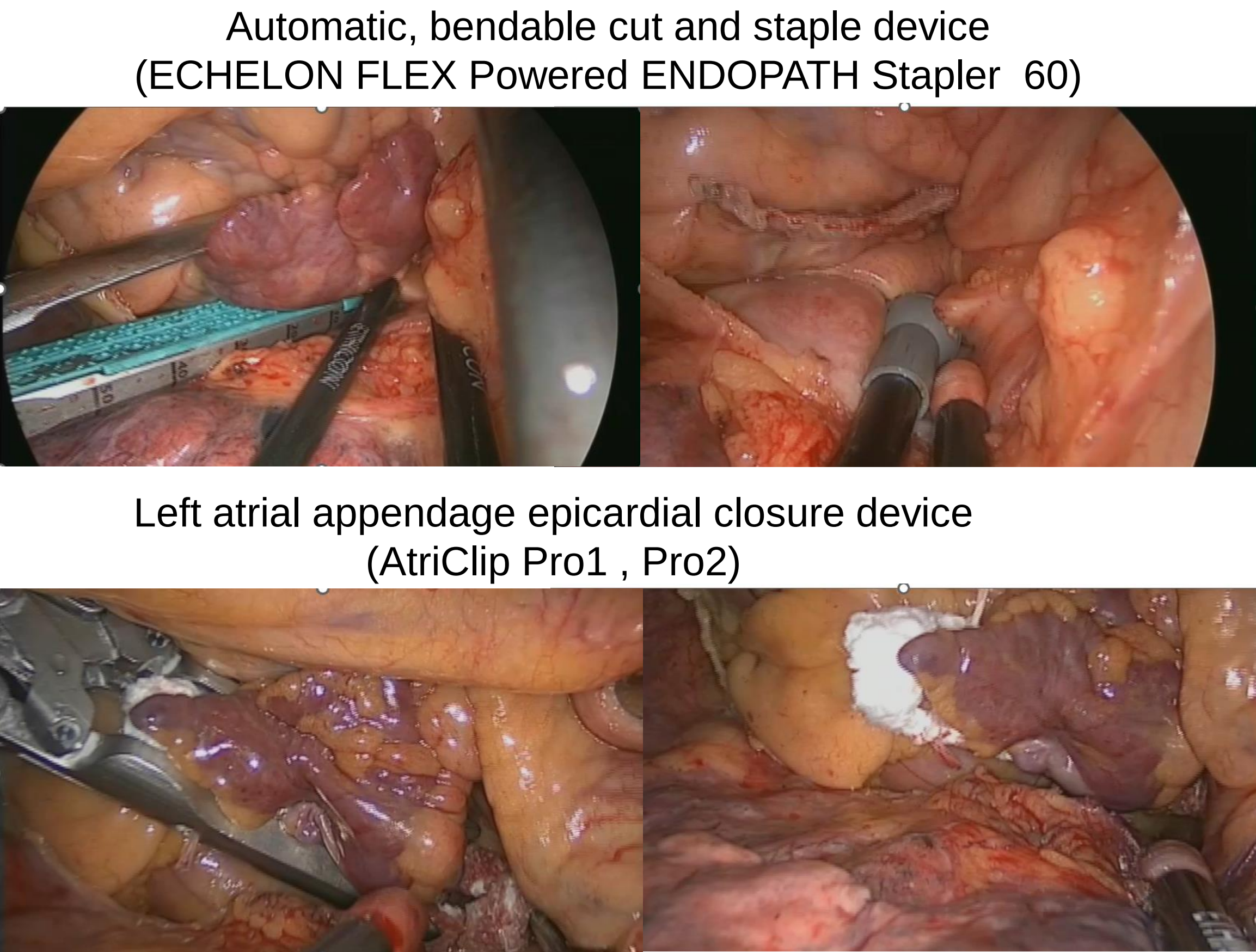
## Purpose

The aim of this study is to evaluate the usefulness of thoracoscopic LAA closure and thoracoscopic ablation (Wolf-Ohtsuka procedure:WO).

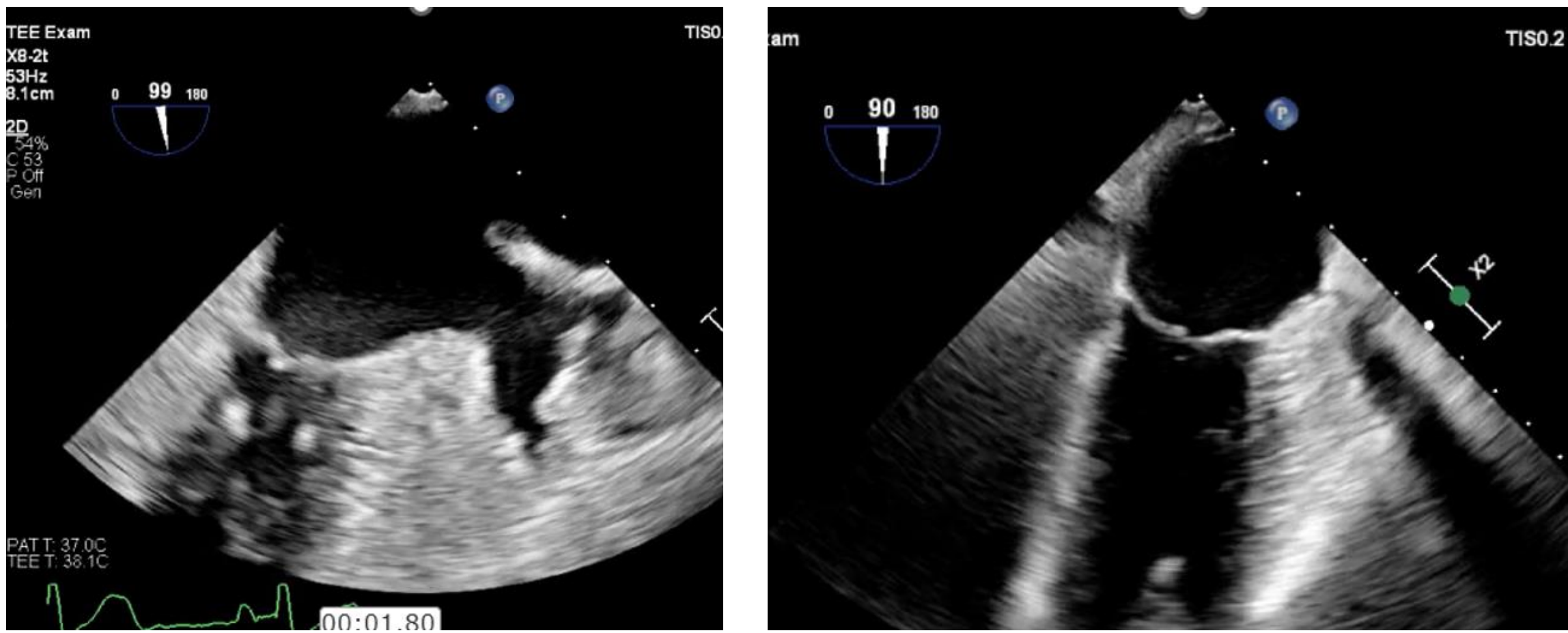
## Method



## LAA closure devices



## Intraoperative transesophageal echocardiography



## Patients' Characteristics (N=124)

|                                              |                    |
|----------------------------------------------|--------------------|
| (2018.3-2023.2)                              |                    |
| Male : Female                                | 98 : 26            |
| Age,years                                    | 70.0 ± 9.0 (39-90) |
| Mean duration of Af, year                    | 10.0 ± 8.7         |
| Type of AF                                   |                    |
| paroxysmal AF                                | 33                 |
| persistent /long-standing persistent AF      | 59                 |
| permanent AF                                 | 32                 |
| CHA <sub>2</sub> DS <sub>2</sub> -VASc score |                    |
| HASBLED score                                | 3.74 ± 1.59        |
|                                              | 2.01 ± 1.11        |

## 3 types of Wolf-Ohtsuka (WO) procedures

|                             |                          |                  |
|-----------------------------|--------------------------|------------------|
| <b>WO-II</b>                | <b>Lt.WO</b>             | <b>WO-I</b>      |
| LAA closure                 | LAA closure              | LAA closure      |
| 33                          | Lt.PVI                   | TT-MAZE          |
| Early cases                 | 17                       | 74               |
| Long-standing persistent AF | (midterm~2019.12)        | PAF 24           |
|                             | or                       | Persistent AF 50 |
|                             | Severe adhesion          |                  |
|                             | Bad one lung ventilation |                  |

## Surgical outcomes

|                                       |                            |
|---------------------------------------|----------------------------|
| Operation time                        | 119 ± 46 min (31-294min)   |
| Hospital stay                         | 6.4 ± 2.3 days (3-14days)  |
| LAA closure devices                   |                            |
| ECHELON FLEX Powered ENDOPATH Stapler | 91                         |
| AtriClip                              | 33                         |
| Intraoperative complication:          | thoracotomy for bleeding 1 |
| Major Postoperative Complication:     | none                       |
| Minor Postoperative Complication :    | Pleural effusion 6         |
|                                       | SSI 1                      |
|                                       | Diaphragmatic paralysis 3  |

## Discontinuation of anticoagulation and thromboembolism

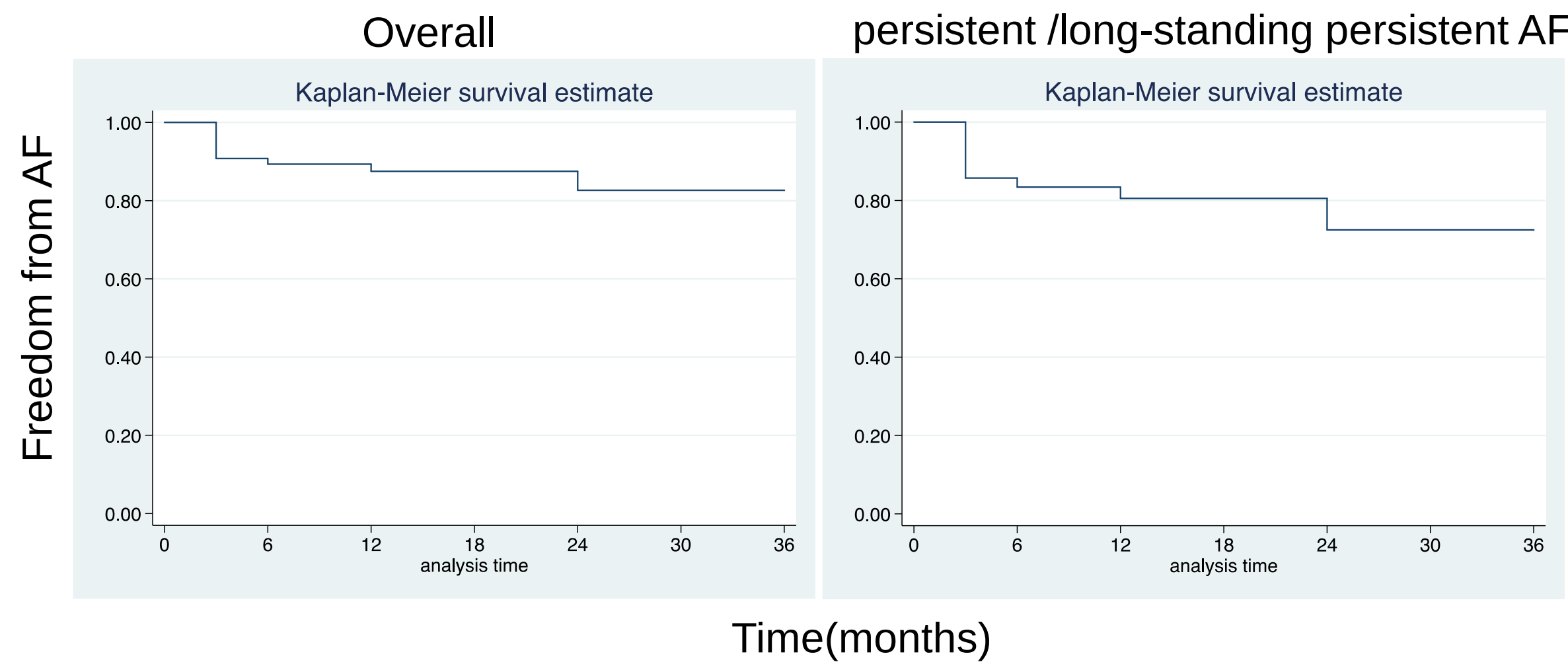
|                                              |                |
|----------------------------------------------|----------------|
| CHA <sub>2</sub> DS <sub>2</sub> -VASc score | 3.74 ± 1.59    |
| Discontinuation of anticoagulation           | 97% (114/118 ) |
| Thromboembolism after WO                     | 0% (0/118 )    |

## Percent of patients in sinus rhythm

|               |                          |              |                       |
|---------------|--------------------------|--------------|-----------------------|
| Sinus rhythm  | 6 month after procedure  | 84%          | (58/69)               |
| Sinus rhythm  | 12month after procedure  | 79%          | (31/39)               |
| Sinus rhythm  | 24 month after procedure | 82%          | (18/22)               |
| Sinus rhythm  | 36 month after procedure | 100%         | (4/4)                 |
| Sinus rhythm  | at 6m 12 m 24m 36m       |              |                       |
| PAF           | 26/26 (100%)             | 13/13 (100%) | 9/9 (100%) 2/2(100%)  |
| Persistent AF | 32/43 (74%)              | 18/26 (69%)  | 9/13 (69%) 2/2 (100%) |

## Freedom from AF

Early-midterm result after WO-I (LAA closure +TT-MAZE)



## Summary

- Complete closure of LAA was obtained for all patients.
- Thromboembolic event was not observed for the patient who received thoracoscopic LAA closure even after discontinuation of anticoagulation therapy.
- Recovery rate of sinus rhythm after WO-I was 79% one year after operation.

## Conclusions

- Thoracoscopic LAA closure may play an important role in effectively reducing stroke even after discontinuation of anticoagulation for AF patients.
- Thoracoscopic bipolar ablation is safe and effective.
- Thoracoscopic LAA closure and ablation may provide minimally invasive therapeutic option for AF patients.