

# CONCOMITANT ATRIAL FIBRILLATION ABLATION IN PATIENTS UNDERGOING MINIMALLY INVASIVE MITRAL VALVE SURGERY

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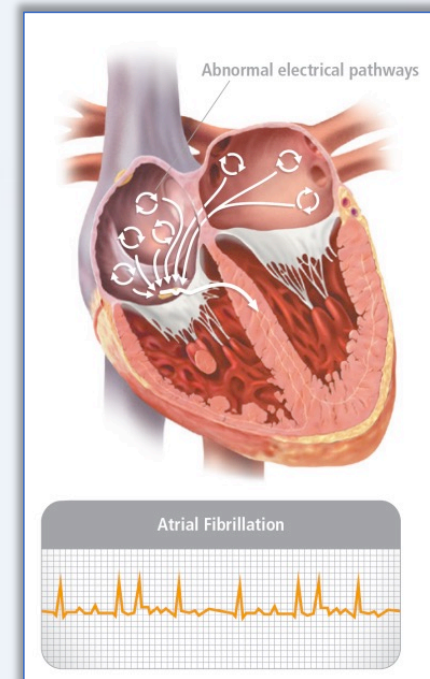
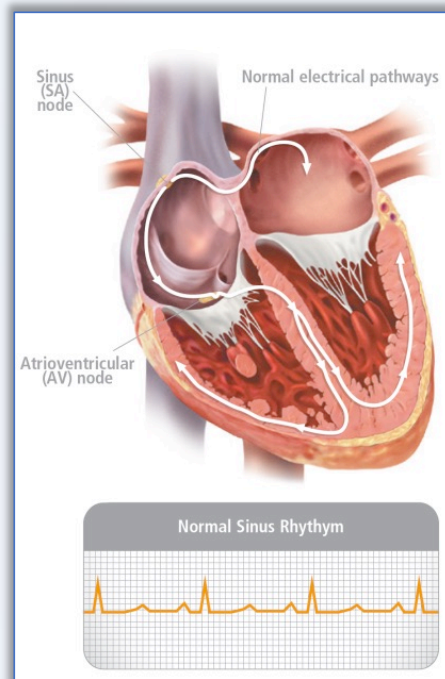
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## Atrial fibrillation (AF)

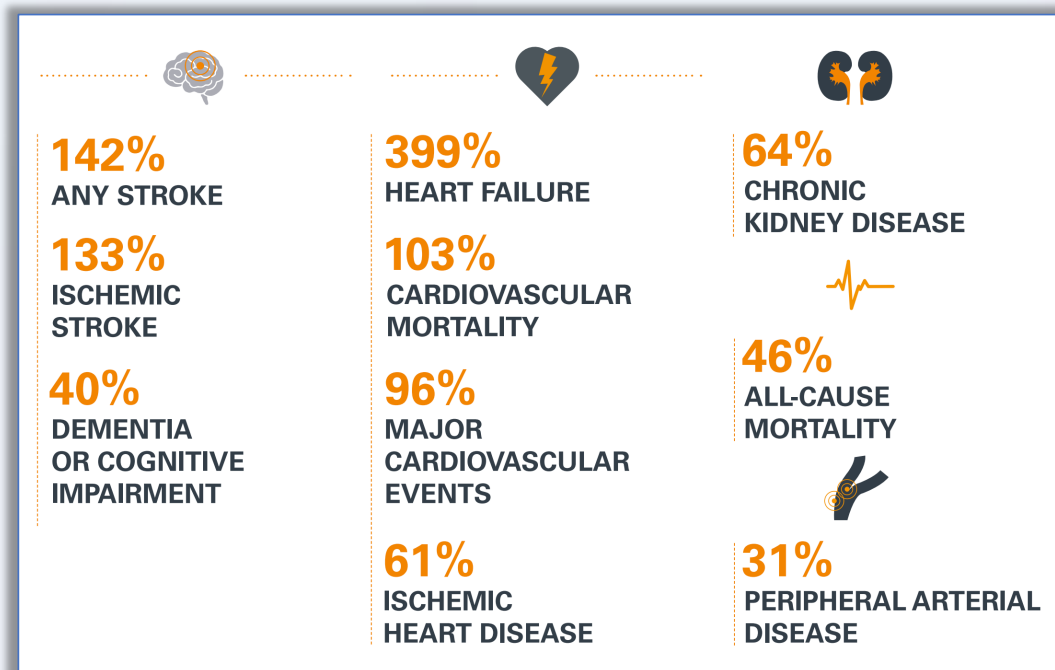
- Characterized by an irregular and often fast heartbeat
- Uncoordinated contraction of 2 atria





## Atrial fibrillation (AF)

- Most common arrhythmia encountered (3% of the population).
- Higher incidence among patients presenting for MV surgery (30–50%).



## Pathophysiology

- Pathophysiological mechanisms: **UNCLEAR**
- **Triggers:** a single rapidly firing focus in the atria (most frequently: pulmonary veins, muscular sleeves of the superior vena cava, coronary sinus or ligament of Marshall)
- Abnormalities of the **atrial tissue substrate:** fibrosis (excitation wavelets can and perpetuate the arrhythmia)

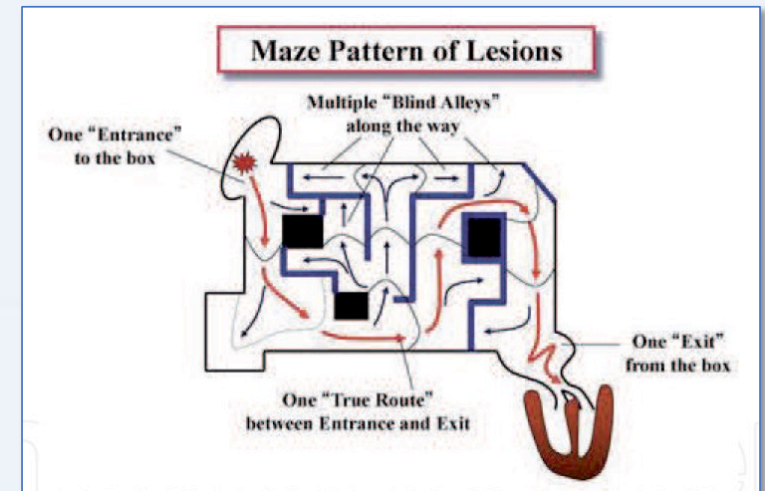




## Surgical ablation

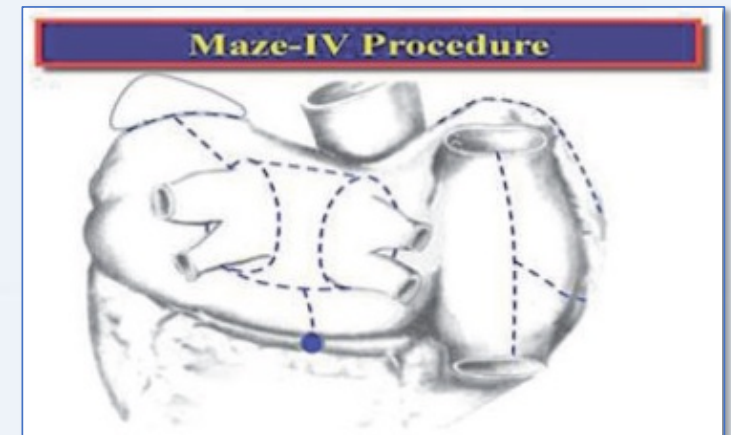
### MAZE concept:

- Lines of conduction block that preclude macro re-entry in either atrium while leaving both atria capable of activation by a sinus generated impulse.
- The maze has **one entrance site, one exit site** and one true route between the entrance and exit.



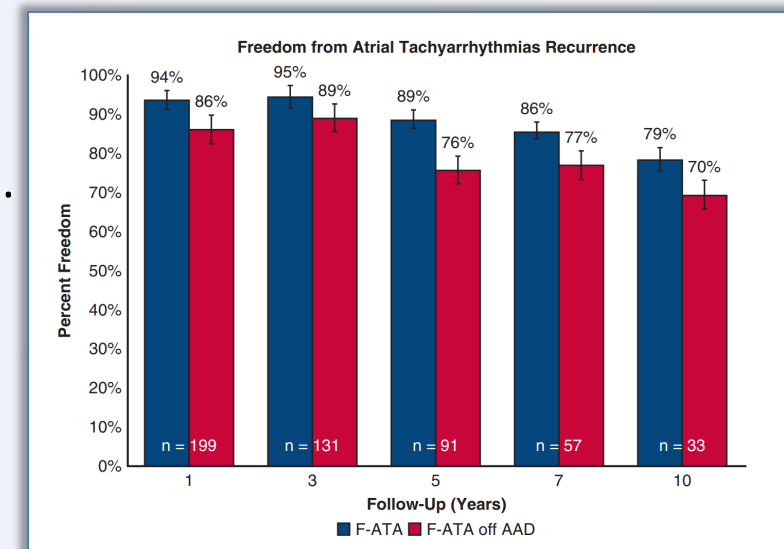
## Surgical ablation

- MAZE IV:
  - Using a combination of bipolar radiofrequency clamps and linear cryoprobes.
  - **Safe and effective -> Now the gold standard.**
  - Benefit: high SR restoration rate, improve symptom, Qol, stroke rate, survival rate.
  - Cost: augmented PM implantation rate.



## Minimally Invasive AF surgery

- Well established and accepted.
- Based on MAZE IV concept.
- Equivalent efficacy w. sternotomy approach.
- Event in long standing AF group.
- There was no 30-day mortality. Freedom from ATAs was 94%, 89%, and 77% at 1, 5, and 10 years, respectively.





## Indication of AF surgery

2016 guidelines of the ESC, in collaboration with EACTS in the management of AF:

- MAZE surgery should be considered in **refractory symptomatic AF** or **post ablation AF** to reduce symptoms (Class IIa).
- MAZE surgery should be considered in **symptomatic patients with AF** (class IIa) and may be considered in **asymptomatic patients in AF** (Class IIb) in **concomitant setting**.



The image features a light gray background with a large, horizontal, teal-colored brushstroke that has a textured, painterly appearance. A white rectangular frame is superimposed over the center of the brushstroke. Inside the frame, the text "UMC EXPERIENCE" is written in a clean, white, sans-serif font.

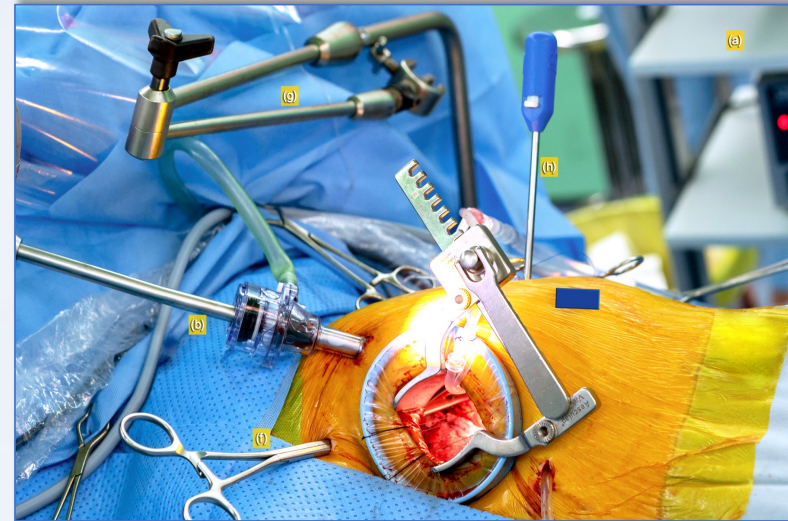
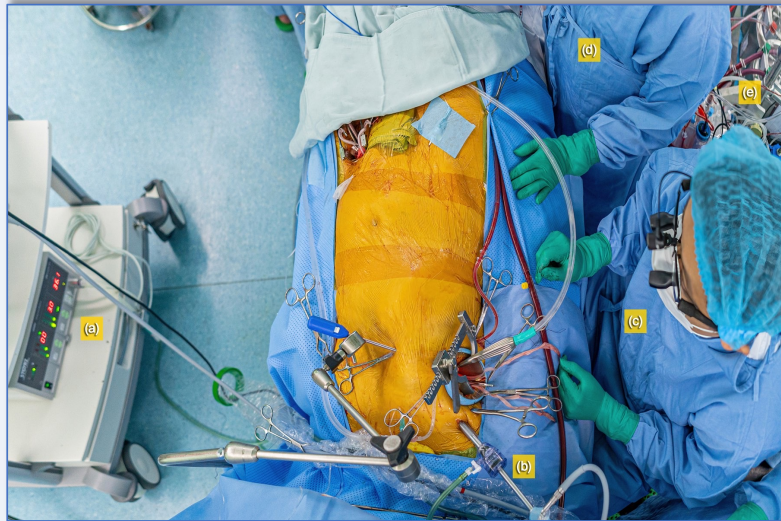
UMC EXPERIENCE



## UMC Experience

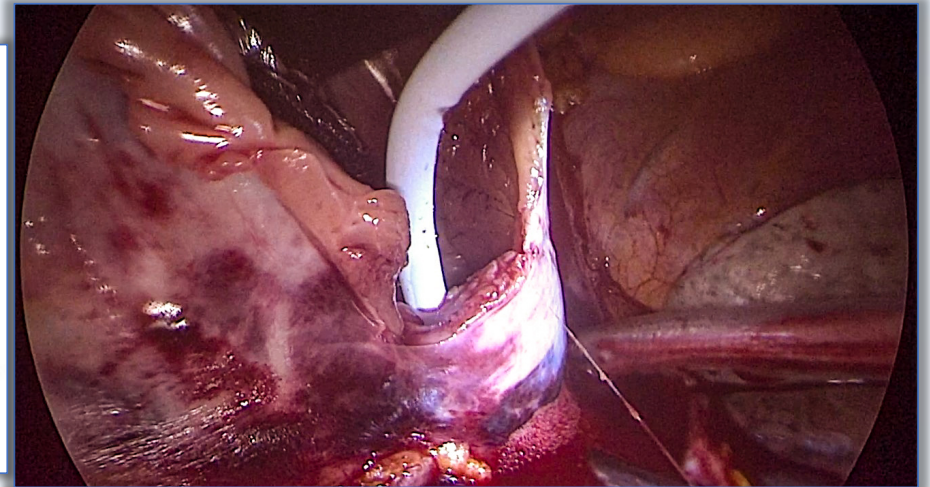
- 86 patients was retrospectively investigated (2017 – 2022).
- Concomitant MAZE IV in MI mitral or mitral and tricuspid surgery.
- Monopolar RF energy.
- LAA closure.
- Amiodarone: 3 months post op.
- AF recurrence is detected by Holter ECG.

## UMC Experience

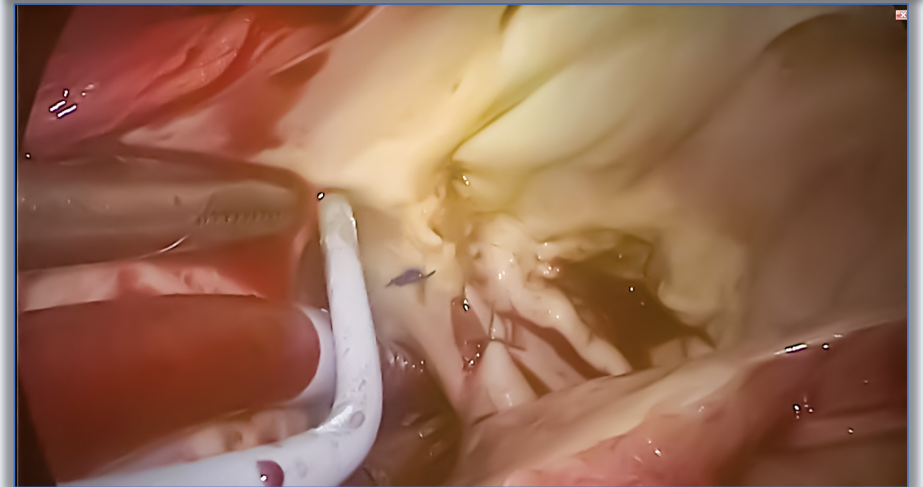


- Working port at 4<sup>th</sup> ICS.
- VATs or Total endoscopic 3D surgery.

## UMC Experience



- Endocardial & epicardial ablation.
- 1 mm/s, 30W.



## UMC Experience



Characteristic	N = 86
Age	58 (34;73)
Female	72.1 (62)
BMI	21.9 ± 3.6
EF	56.4 ± 6.6
LA	52 ± 13 mm
Long standing AF	67 (77.9)
Percutaneous ablation	0 (0)



## UMC Experience

Characteristic	N = 86
HBP	24 (27.9)
Diabetes	11 (12.8)
Peripheral artery disease	5 (5.8)
Stroke	21 (24.4)
PAPs	40 (30;49)
EuroSCORE II	3.9 ± 1.5



## UMC Experience

Characteristic	N = 86
Mitral valve replacement	73 (84.9)
Mitral valve repair	13 (15.1)
Tricuspid valve repair	34 (39.5)
LAAA closure	86 (100)
Cross clamp time	108.5 $\pm$ 20.8
CPB time	162.7 $\pm$ 34.3
MAZE time	13 $\pm$ 2



## UMC Experience

Characteristic	N = 86
Conversion rate	0 (0)
Re-exploration rate	3 (3.5)
Neurological complication	3 (3.5)
Intubation time	19 (13;28)
Early mortality	2 (2.4)
30-day mortality	0 (0)





## UMC Experience

- Mean follow up time: 18 months
- Successful rate: 77%
- PM implantation rate: 10.4%.
- Stroke rate: 0%.
- Mortality: 0%



## TAKE HOME MESSAGE

- AF is fast becoming one of the world's most significant health issues that places a critical burden on healthcare systems.
- Maze procedure is safe and efficacy.
- The use of mini-invasive techniques for AF treatment has become widely accepted.
- Atrial Fibrillation Heart Team in management of AF.



**THANK YOU!**