

# ROLE OF EPICARDIAL ADIPOSE TISSUE IN THE PATHOGENESIS OF ATRIAL FIBRILLATION

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## Introduction

One of the risk factors for atrial fibrillation is obesity. Clinical studies revealed in this context the important role of the epicardial adipose tissue—a visceral adipose tissue depot located between the myocardium and the visceral pericardium, which due to the anatomical proximity to the underlying myocardium, can contribute to the formation of an arrhythmogenic substrate.

## Keywords

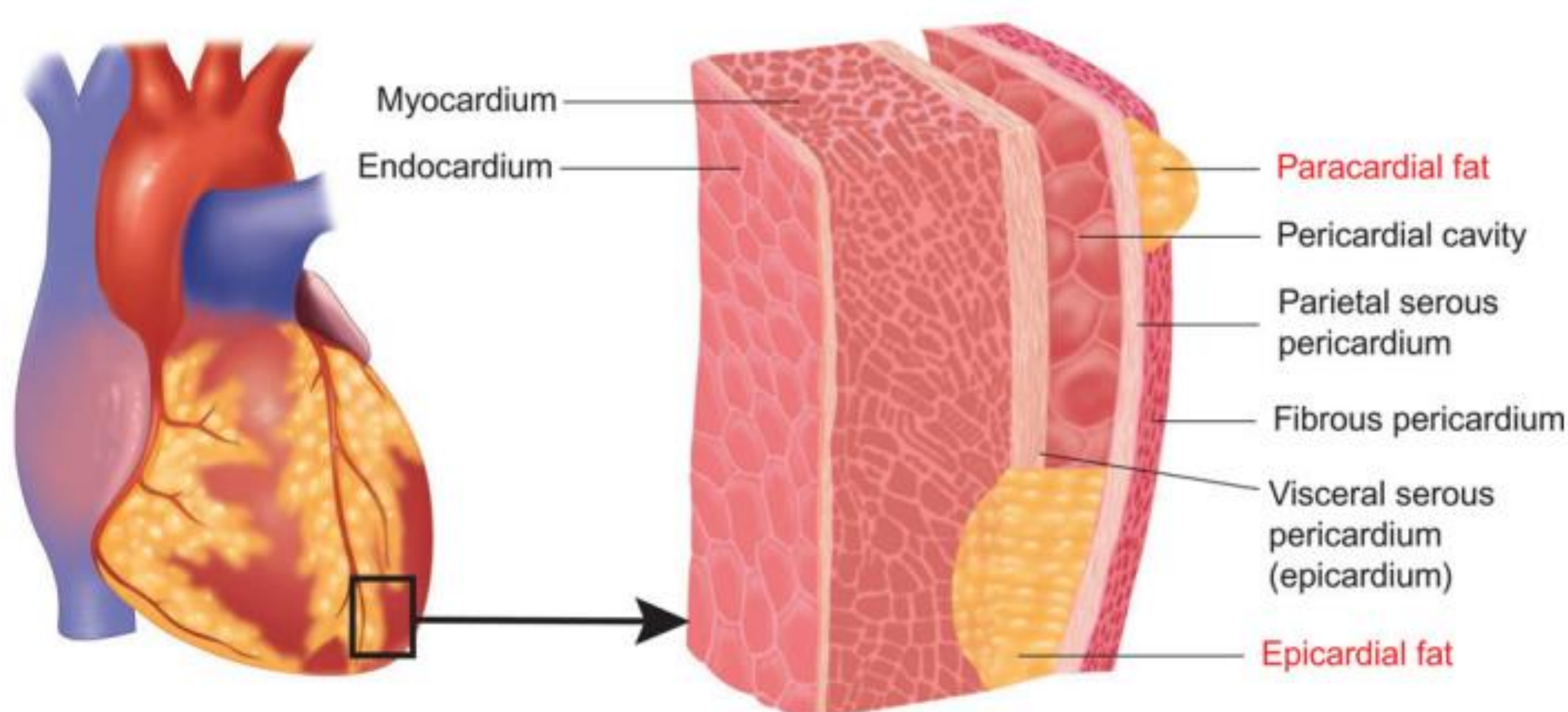
atrial fibrillation, epicardial adipose tissue

## Purpose

To describe the mechanisms through which epicardial adipose tissue is involved in the pathogenesis of atrial fibrillation.

## Material and methods

In order to carry out the literature review, articles published in the last five years were analyzed, the search in the Pubmed database was performed using the following keywords: atrial fibrillation, epicardial adipose tissue.

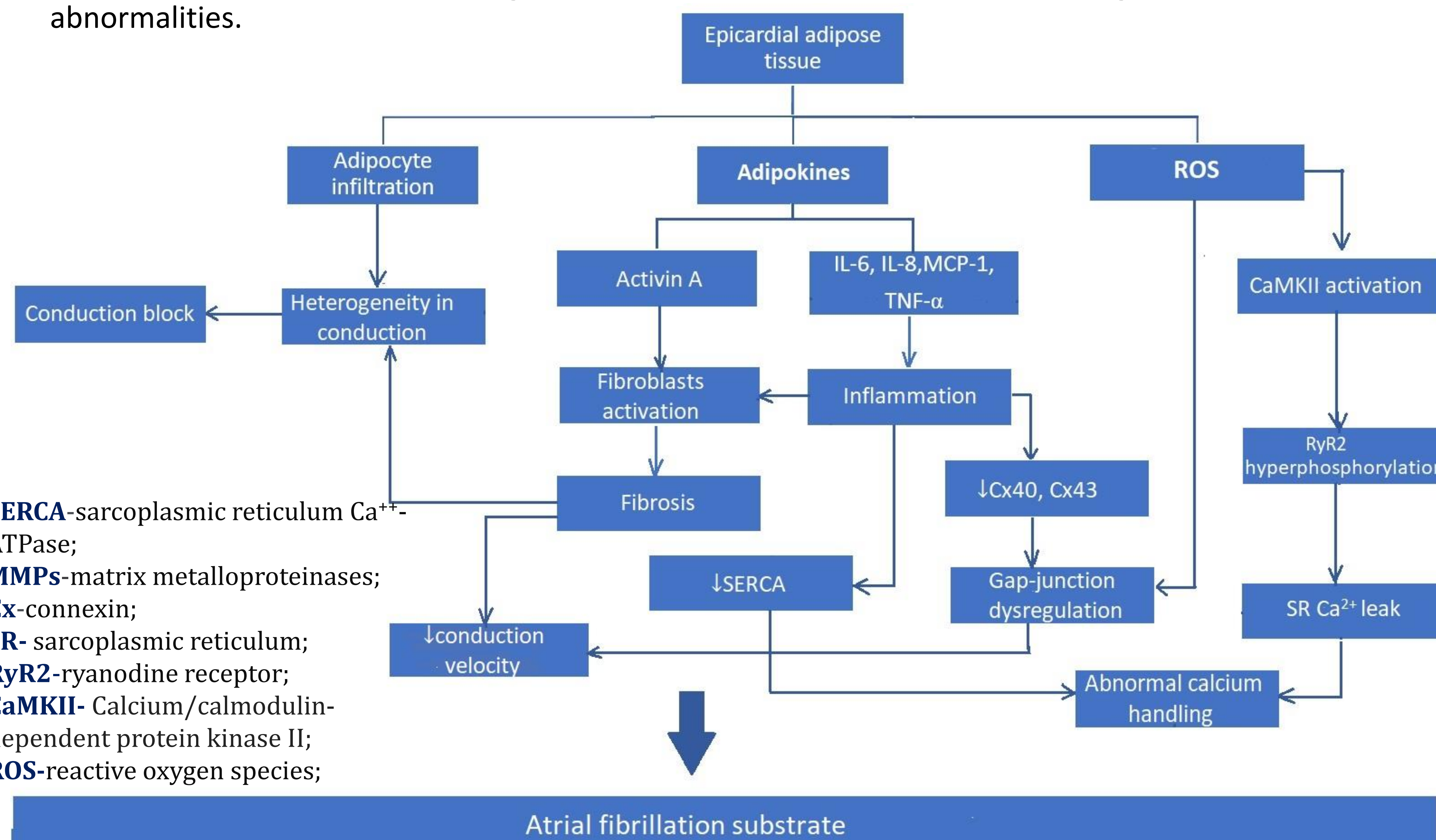


**Fig.1 Location of adipose tissue deposits around the heart**

Auer J. (2017). Fat: an emerging player in the field of atrial fibrillation. *European heart journal*, 38(1), 62–65. <https://doi.org/10.1093/eurheartj/ehw013>

## Results

Epicardial adipose tissue secretes a series of bioactive factors called adipokines which act in a paracrine or vasocrine way meanwhile, it represents a source of reactive oxygen species. Under certain pathological conditions, such as obesity, epicardial adipose tissue adopts a secretome dominated by proinflammatory mediators like IL-1 $\beta$ , IL-6 and TNF $\alpha$ , and profibrotic factors such as activin A—member of TGF- $\beta$ , as well as matrix metalloproteinases. The lack of an anatomic fascia between this adipose tissue depot and the myocardium makes possible the fatty infiltration of the atrial myocardium, which together with the process of fibrosis generates conduction abnormalities.



**Fig.2 Potential implications of epicardial adipose tissue for arrhythmogenesis**

## Conclusions

Epicardial adipose tissue volume represents one of the risk factors for atrial fibrillation, which suggests the potential utility of its quantification using imaging techniques. Inflammation, oxidative stress, fibrosis, and fatty infiltration are through the main pathogenic mechanisms responsible for this association.