

## CHAPTER 12:

# INFLAMMATORY CARDIOVASCULAR DISEASES: DISEASES INVOLVING THE PERICARDIUM, MYOCARDIUM AND ENDOCARDIUM

## PERICARDIAL DISEASES

The pericardium is the outermost layer of the heart. While the pericardium is not essential and can be removed without a functional detriment, it serves many purposes. The outer surface of the pericardium is attached to the diaphragm, sternum, and costal cartilage to help anchor the heart in the chest cavity. The outermost surface of the pericardium is referred to as the fibrous layer or the fibrous pericardium. This layer has a tough fibrous surface that is not easily distensible. The fibrous pericardium helps to maintain the shape and size of the heart, especially in fluid overload situations. The serous layer of the pericardium (serous pericardium) is the inner surface that surrounds the potential space referred to as the pericardial cavity (Figure 12.1). The parietal layer of the serous pericardium is contiguous with the fibrous layer and is the inner wall of this layer of the pericardium. The epicardial layer of the heart is also the visceral layer of the serous pericardium. The serous pericardium protects the heart against inflammation and immunological compromise.

The pericardial cavity contains approximately 15 to 20 ml of serous fluid and functions to reduce friction on the pericardium. The tough fibrous layer of the pericardium does not distend easily; therefore, accumulation of fluid in the pericardial space may or may not result in hemodynamic compromise. Small amounts of fluid accumulated quickly in the pericardial cavity may result in hemodynamic compromise, as the fibrous pericardium cannot quickly expand to adjust for the volume changes. However, large amounts of fluid accumulated gradually over time may be tolerated as the fibrous pericardium has time to adjust to the increase of fluid. The pericardial space is usually able to adapt to acute volume additions up to 100 ml without increased pressure on the heart and hemodynamic compromise. If fluid accumulates slowly, up to 1-2 liters of fluid may be held in the pericardial space (DeCastro & Schwartz, 2003) without hemodynamic compromise.

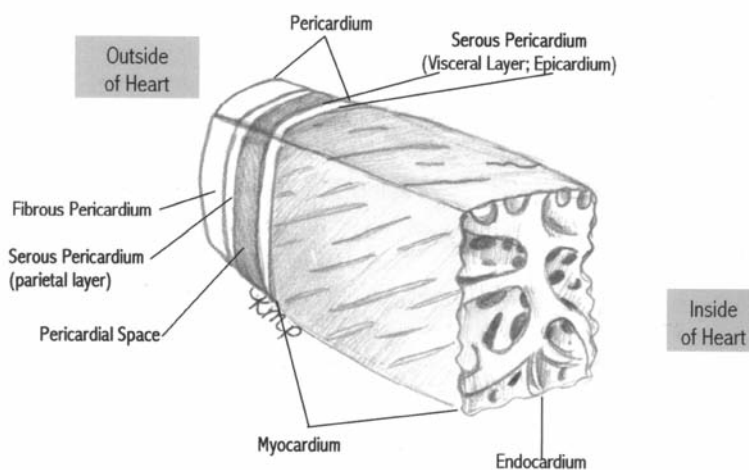


Figure 12.1: Layers of the heart.

### Pericarditis

Pericarditis is an inflammatory process involving the visceral or parietal layers of the pericardium.

#### Causes

There are many causes of pericarditis (Table 12.1), viral infection being the most common (Goyle and Walling, 2002). Echovirus and coxsackievirus A and B are the most common causes of viral pericarditis.