# DISSECTION AND PREPARATION OF VISCERA FOR PLASTINATION: PLASTINATION OF A BOVINE HEART

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## INTRODUCTION

The descomposition of organic matter is a vital process in nature, but is also an impediment for morphological studies and research. The plastination is an alternative to the conservation of biological tissue or whole bodies or organs.

The plastination is a technical procedure for preserving biological material, created by the artist and physician scientist Gunther von Hagens in Heidelberg, Germany, in 1977. It consists of extracting the fluids of the body using solvents such as acetone and then replace them with plastic resins such as silicone, epoxic resins or polyester. This result in dry, odorless and durable pieces

## OBJECTIVES

•Dissect a bovine heart for teaching. The veterinary students can understand perfectly the anatomy of the heart, especially regarding coronary vascularization.

•Learn the plastination conservation technique.

## MATERIALS AND METHODS

This work was conducted in the area of Anatomy of the Faculty of Veterinary Medicine at the Universitat Autònoma de Barcelona. We used a bovine heart taken from a sluaghterhouse.

In the image 1 we can see the heart of cattle before their dissection. We can not appreciate the coronary vascularization due to the large amont of fat covering the heart.

The main coronary arteries and veins were dissectionated and a window was performed in the right ventricle to observe internal structures.

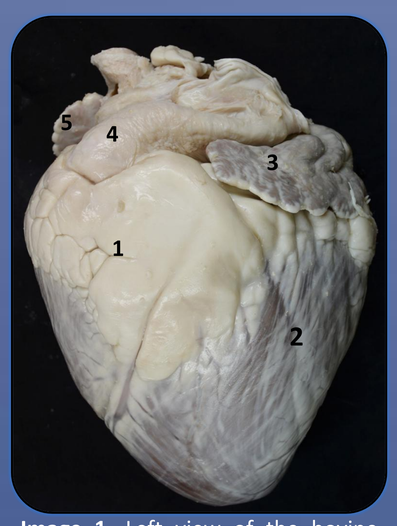



**Image 1.** Left view of the bovine heart before dissection. 1, Right ventricle; 2, Left ventricle; 3, Left atrium; 4, Pulmonary trunk; 5, right atrium

To make plastination we followed the protocol of S-10 technique :


## RESULTS

Aspect of the bovine heart after remove the adipose tissue and dissect the coronary vascularization

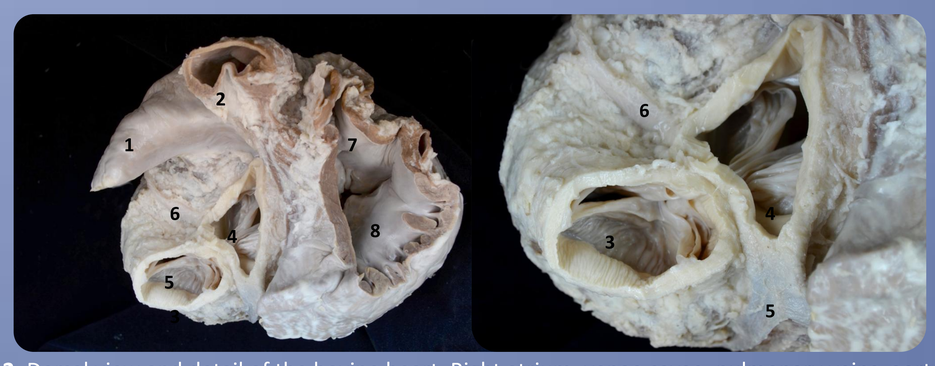



**Image 2.** Dorsal view and detail of the bovine heart. Right atrium, venae cavae, pulmonary veins, aorta and pulmonary trunk were removed in order to visualize the internal structure. 1, Right atrium; 2, Venae cavae; 3 Pulmonary trunk with its three semi-lunar valves (left, right and middle); 4, Aorta with three semi-lunar valves (right, left and septal); 5, Left coronary artery; 6, Right coronary artery; 7 Septal cusp of the left atrioventricular valve (bicuspid); 8 Parietal cuspid of left atrioventricular valve (bicuspid)

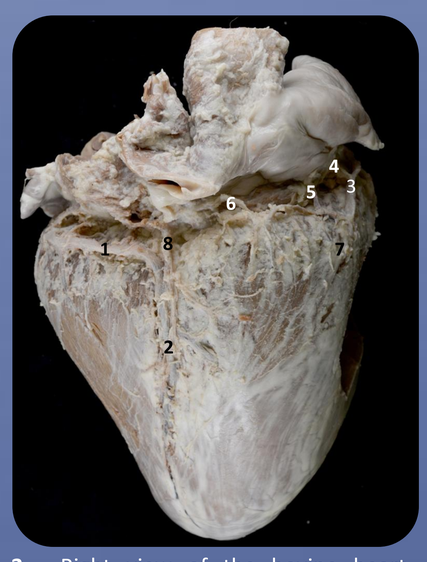
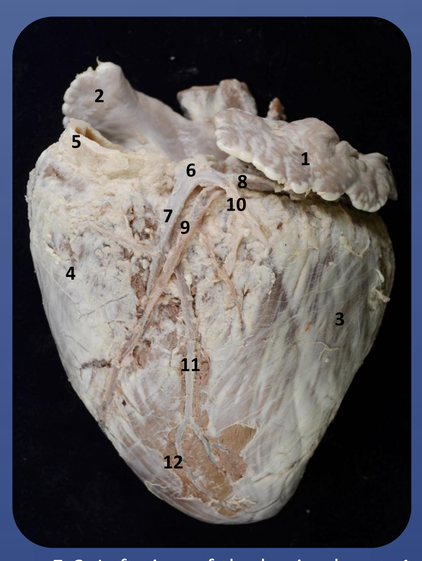
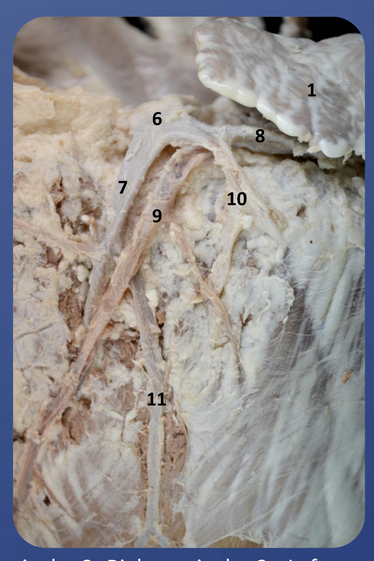



**Image 3.** Right view of the bovine heart. 1, Circumflex branch of left coronary artery; 2, Subsinusal interventricular branch of left coronary artery; 3, Right coronary artery; 4, Proximal branch of the right atrium; 5, Intermediate branch of right atrium; 6, Distal branch of right atrium,; 7, Right distal ventricular branch; 8, Middle cardiac vein.


**Image 4.** Right view of the bovine heart. Part of right ventricle was removed. 1, Wall of the right ventricle; 2, Interventricular septum; 3, Chordae tendineae; 4, Right coronary artery.




**Images 5-6.** Left view of the bovine heart. 1, Left auricule; 2, Right auricule; 3, Left ventricle; 4, Right ventricle; 5, Pulmonary artery; 6, Left coronary artery; 7, Paraconal interventricular branch of left coronary artery; 8, Circumflex branch of the left coronary artery; 9, Great cardiac vein; 10, Proximal ventricular branch; 11, Proximal branch collateral; 13,Distal collateral branch.

## CONCLUSION

The plastination technique has several advantages compared with classic conservation techniques:

- We have obtained a high quality and durable viscera
- We have preserve the texture, color and structure
- The organ is preserved in dry form without the need to use toxic and irritable conservants
- The plastinated pieces contributes to improve the anatomical investigation and teaching