A New Method for Dissection of The Heart

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Abstract

- **Aim:** The purpose of this method is to provide a useful and effective approach to dissection of the heart, for pathologists and forensic pathologists in their work. We have been encouraged by the positive comments that have been received from colleagues and by the practical convenience of the method in our work.
- **Method:** This method is different from the classical method of Virchow, methods of Banti, Tatieff and Radanoff. The method is focused on examining of the coronary vessels and suitable sections of the myocardium from the posterior side of the heart by opening each of the four chambers, starting from the left, beside the septum.
- An anatomical description together with dissecting instructions is given in this paper with basic line drawings and pictures to supplement the text and guide in dissection.
- **Conclusion:** There are methods besides the classical method, each of them suitable for different purposes. Our method is universal and timesaving in forensic pathology practice. It is an alternative for rewarding work.

- **Key Words:** Dissection of the heart, Forensic, method.

Purpose

- The purpose of this method is to provide a useful and effective approach to dissection of the heart, for pathologists and forensic pathologists in their work. We have been encouraged by the positive comments that have been received from colleagues and by the practical convenience of the method in our work.

Method

- This method is different from the classical method of Virchow, methods of Banti, Tatieff and Radanoff.(figures 1-2) The method is focused on examining of the coronary vessels and suitable sections of the myocardium from the posterior side of the heart by opening each of the four chambers, starting from the left, beside the septum.

Figure 1 – Posterior side of the heart

- Incisions of our method are in red

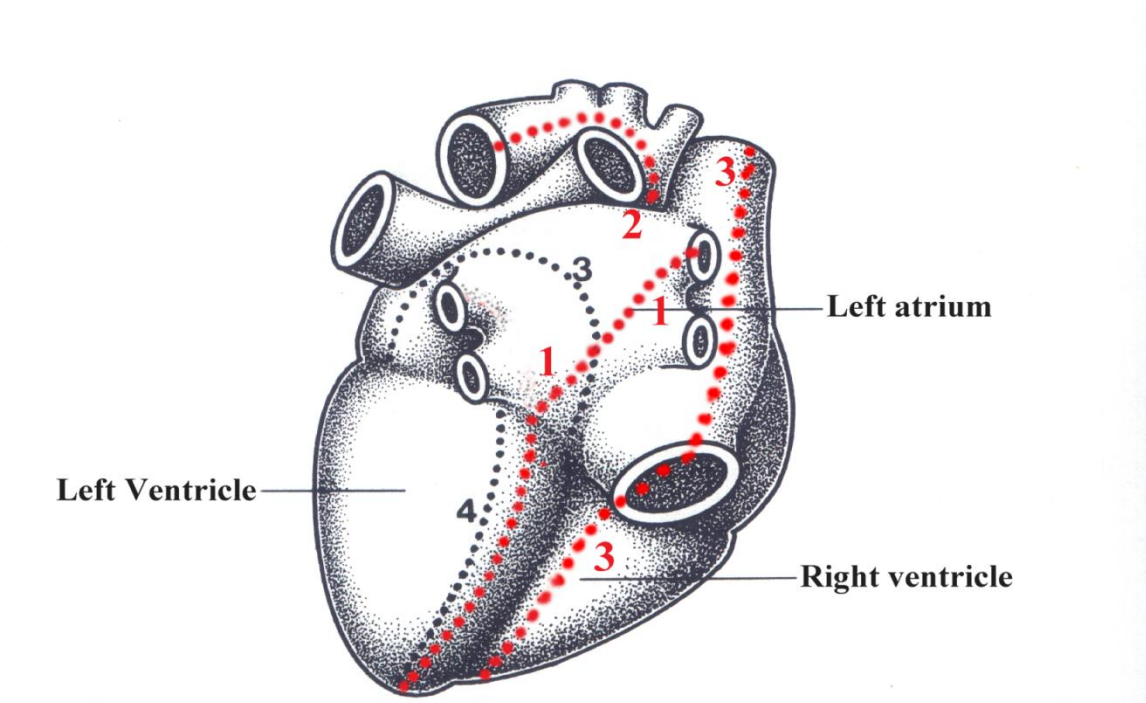
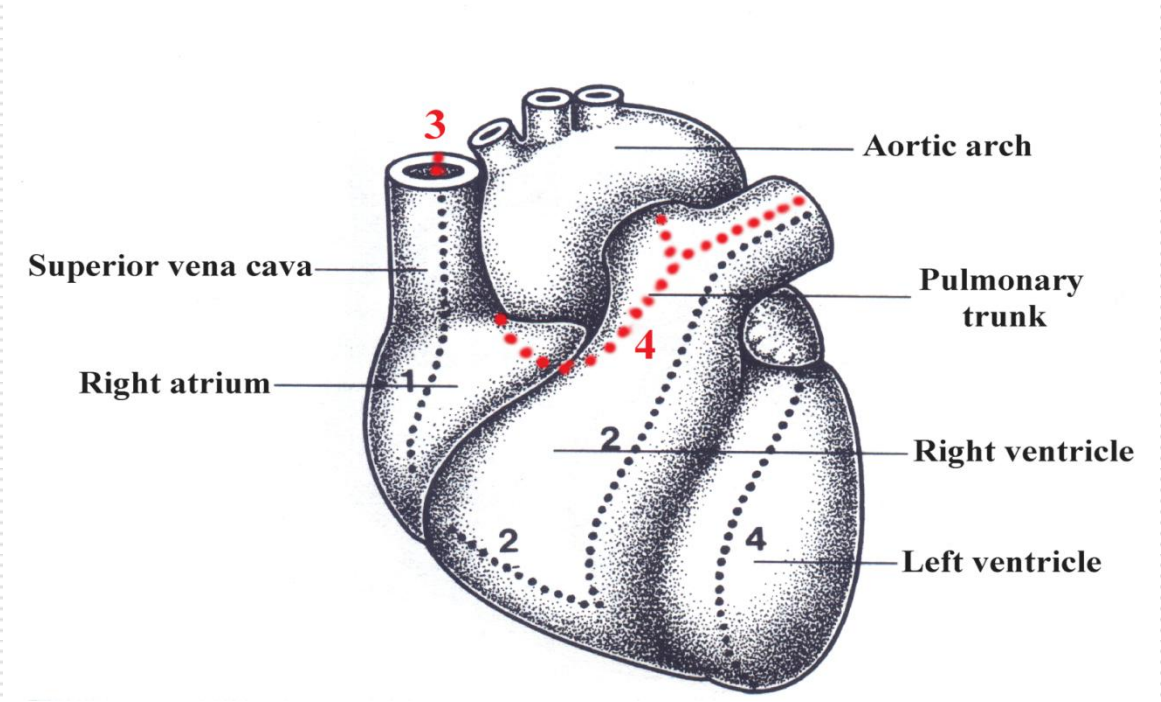


Figure 2 – anterior side of the heart

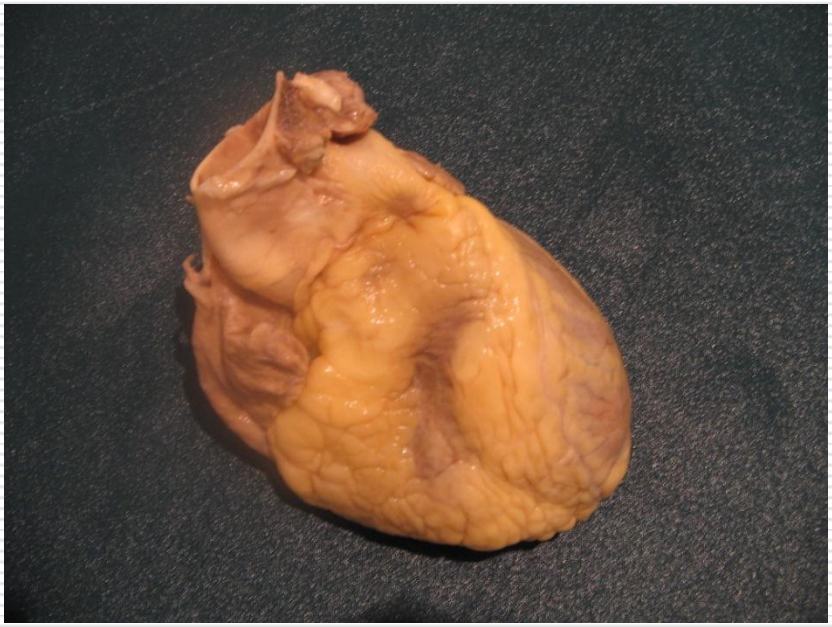
- Incisions of our method are in red

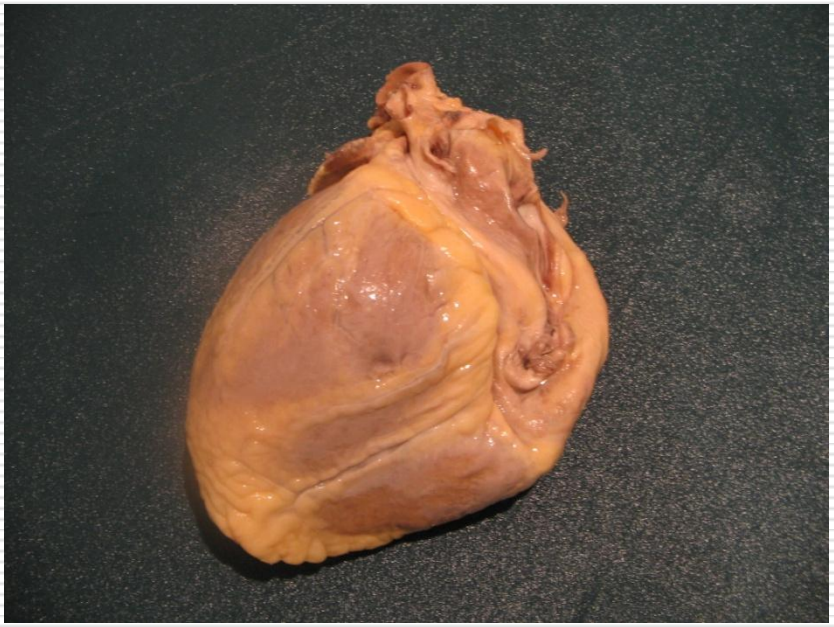


Preparation of the heart

- First, review the in situ heart surrounded by the pericardium. Carefully open the pericardium. Then, carefully cut the pulmonary arteries and veins at the hilum of the lungs(or first remove the lungs both with the heart and then cut the arteries and veins). The next step is to cut the aorta(above the openings of the coronary arteries) and pulmonary trunk at the base of the heart and the superior and inferior vena cava close to the heart. Put the heart on its anterior side down.

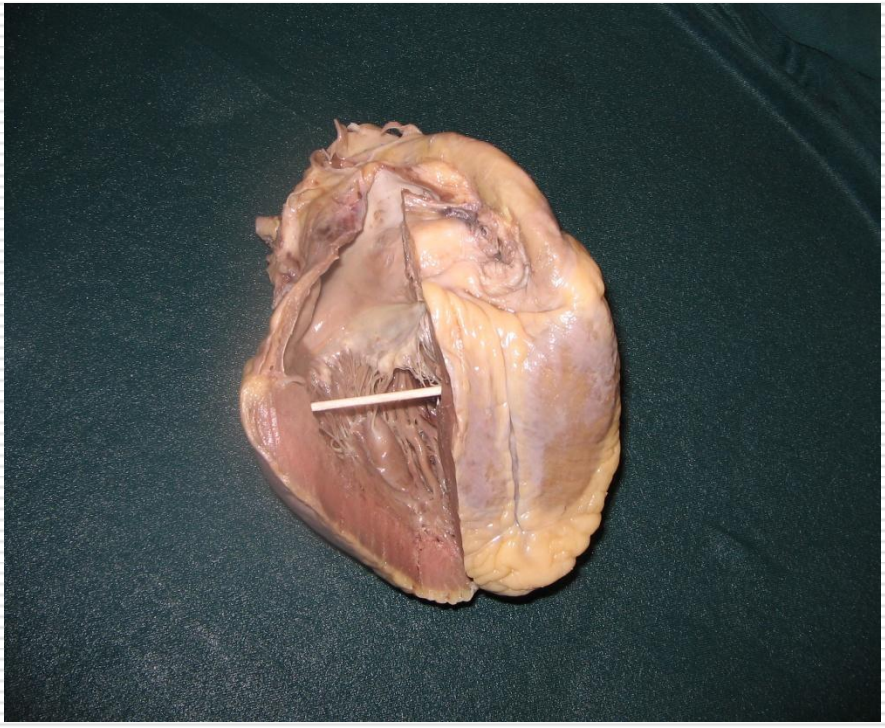
The heart after the preparation





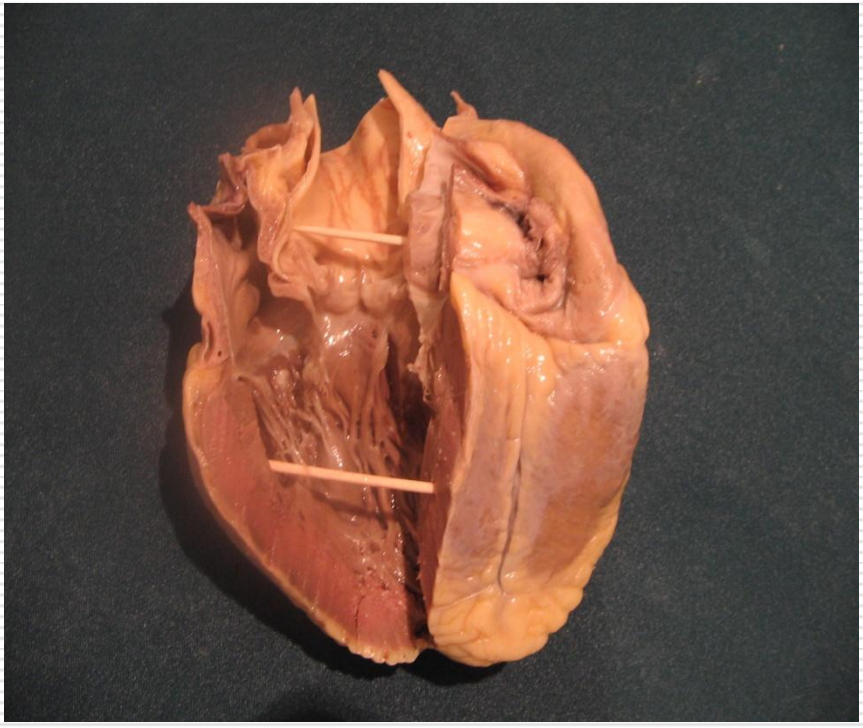
Step 1

- To view the internal structure of the heart, first open the left atrium from the back of the heart by an incision that begins from the right pulmonary vein(figure1 - 1) or by incision through the posterior wall down beside the septum. At the same move open the left ventricle along the septum down to the apex of the heart. Opening this flap(which is the whole left half of the heart) reveals the contents of the left atrium and part of the left ventricle.



Step 2

- Then remove the blood clots, cut the chorda tendineae and make an incision through the backside of the mitral valve and aortic valve into the ascending aorta and open it(figure1 - 2). Now the left ventricle is open both with the aorta. We can see the aortic valve and the ostia of the coronary arteries in the sinuses behind. Make incisions transversely along the left coronary artery and its branches and then along the right coronary artery and observe.

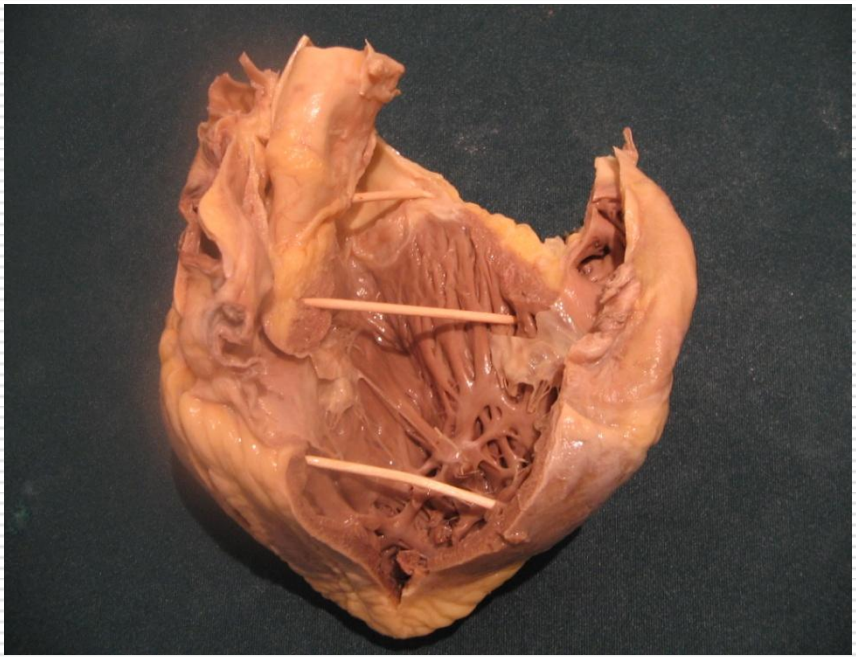


Step 3

- Cut the posterior wall of the vena cava from the ostium of superior vena cava to the ostium of inferior vena cava(figure1 - 3). Open the right atrium posteriorly by an incision that begins from inferior vena cava and continues inferiorly close to the septum on the back side of the heart and ends near the apex(3). We can see the right atrium and the fossa ovalis on the interatrial wall and the tricuspid valve.

Step 4

- Cut the chorda tendineae. Then open the right ventricle by an incision through the right side of the tricuspid valve between the septal and anterior cusp of the valve(figure2 - 4). Cut with the same move the anterior wall of the right atrium and make an incision around the aorta through the pulmonary valve, from the anterior upper side of the right ventricle and in the end open the pulmonary arteries(figure2 - 4).



Inspection of the myocardium

- All of the four chambers of the heart are open. Now we can dissect the myocardium of the left ventricle and of the interventricular septum by single longitudinal incisions from the back side of the heart.

Results

- We can easily open all of the four chambers of the heart and see the contents. Coronary arteries are visible outside and inside(after opening by little incisions), all along and without intersections. It’s simple to inspect the myocardium topographically for infarctions and other lesions by this way of dissection. By extracting information from within the heart, the examiner is better able to describe and define both normal and disease states.

Conclusion

- There are methods besides the classical method, each of them is suitable for different purposes. Our method is universal and timesaving in forensic pathology practice. It is an alternative for rewarding work.