Author's response to reviews

Title: Quadricuspid Aortic Valve by using Intraoperative Transesophageal Echocardiography

Authors:
Zhenghua Xiao MD (lg886agl@126.com)
Wei Meng MD,PHD (meng_wei_1111@yahoo.com)
Eryong Zhang MD,Prof (xzh8585@126.com)

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Response to reviewer

Question 1: In the abstract section it is not clear whether the aortic insufficiency is moderate or severe

Answer: Transthoracic echocardiography (TTE) demonstrated the aortic insufficiency is moderate to severe, a possible quadricuspid aortic valve (QAV) (abstract section, line 7)

Question 2.: The role of 3D TEE has yet to be established and therefore I would tone down the premises of the case, since 2D TEE may have played a role for the recognition of quadricuspid aortic valve as demonstrated in figure 1. Please state the limitation of 3D TEE that does not have the ability to have color Doppler.

Answer: We prepare the TEE in the routine heart operation, and we check patient before starting with cardiopulmonary bypass. Although 3-D TEE does not have the ability to have color Doppler. We use the 3-D image to reconstruct the QAVs opening and closing conditions. Thus, it plays an important role in reaching the appropriate diagnosis and in guiding further surgical procedure. (Conclusion section, line 5-7)

Question 3. Please specify which are the congenital condition in which quadricuspid aorta may be concomitant.

Answer: The mechanism of this congenital malformation is not fully
known. One of the leading hypotheses is an abnormal septation of embryological truncus arteriosus. Normally, after the septation of the arterial trunk, three mesenchymal swellings develop into semilunar leaflets of the aortic and pulmonary trunk. However, in quadricuspid aortic valve, the fourth cusp arises during the early stage of truncal septation resulting to either a different number of primordial aortic leaflets or an abnormal cusp proliferation. In this way, the aortic root deviates from normal configuration with formation of abnormal sinuses, leaflets, and interleaflet triangles. (discuss section, Second paragraph)

Question 4. Please clarify why the patient underwent CT scan

Answer: For this 61-year-old female patient, we should Rule out the coronary heart disease. The coronary angiography examination is the best way, but it is invasive. This patient does not have clinical symptoms of coronary heart disease, so we use the CT as a preliminary examination to rule out the coronary heart disease or other arterial disease. This is a noninvasive examination.

Question 5. It would important to have the 2D images of the patients in order to demonstrate that the aortic valve was not visualized.

Answer: Fig 1 is the preoperative transthoracic echocardiogram (TTE)
disclosed a moderate to severe aortic valve insufficiency but failed to reveal the quadricuspid aortic valve anomaly clearly.

Question 6. Please clarify why the patient underwent TEE, which is not indicated in aortic insufficiency when the diagnosis is clear.

Answer: We prepare the TEE in the routine heart operation, and we check patient before starting with cardiopulmonary bypass. There was a central jet on the TEE color Doppler examination, which is consistent with the severe aortic insufficiency (AI). (Fig 2)

Question 7. Ultrasound Aortic of the United States should read American Society of Echocardiography.

Answer: I am very sorry I made a mistake, and I have deleted this relevant part of this article.

Question 8. The English language should be extensively revised

Answer: I have strengthened the English language of this article, looking forward to your better advices. Thank you very much!