Author’s response to reviews

Title: Surgical treatment of mild to moderately dilated ascending aorta in bicuspid aortic valve aortopathy: The art of safety and simplicity

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Reviewer reports:

Reviewer #1: The article addresses an interesting topic. Cases of aneurysms near the limit of the surgical indication are really a dilemma for the cardiac surgeon. The option of a simple surgery, such as wrapping, that does not need to be in cardiopulmonary bypass is a good technical option. Knowing the long-term result of enveloping, showing similar results between techniques, can increase the indication of enveloping technique. I missed the ethical considerations in the text.

Answer: Thank you very much for your appreciation of we research. As your consideration, the cases of aneurysms near the limit of the surgical indication were really a dilemma for every cardiac surgeon. the Wheat's procedure need more CPB time, so we just want to choice one more easy and fast procedure for these patients. At the beginning of our first operation, we delivery the plan to our hospital ethical committee, they ask we" no injury for patient, and safe". the wrap procedure is more safe, maybe.

Reviewer #2: its a good research article . wrap procedure will certainly save cross clamp and cpb time. encouraging to see similar results in both group in terms of mortality and morbidity.

Answer: Thank you very much for your appreciation of we research.
Reviewer #3: This is an interesting manuscript dealing with wrapping up the ascending aorta with Dacron when replacing the aortic valve in patients with congenital aortic stenosis. The interest is due to the large number of patients, and the strategy the authors used to deal with these patients. They either replaced the ascending aorta or wrapped it up with Dacron from near ostia to the innominate artery. Results were similar. One assumes that this was done to leave the patient with his own aorta, rather than with an artificial material.

Comments:

1) considering their findings, are the authors now routinely wrapping the aorta in this population of patients?

2) It is very simple to replace the ascending aorta with Dacron once the valve is replaced, and there has to be compelling reasons why one would rather wrap the ascending aorta, the main reason perhaps being that these aorta are pretty normal, at least the endothelial surface.

Answer: Thank you very much for your appreciation of this research. I agree with you about that replacing the ascending aorta after aortic valve replace is very simple, but the wrap procedure will certainly save cross clamp and CPB time. We no routinely wrapping the aorta in this population of patients, because many cardiac surgeon in our department no support the wrap procedure and perfect wheat's procedure. So I want to publish this article and have other opinion from every reviewer or reader about how to deal with there cases of aneurysms near the limit of the surgical indication.

Reviewer #4: I have three comments: 1- you cannot say that valve replacement is an aggressive procedure for one group and not aggressive for the other group, as mentioned in the summary. The valve replacement has the same aggressiveness in both groups, but I would not call it aggressive; 2- you have studied patients from 2015 to 2019 and that is a period of time too short to be called long. In this 4 years period of time you probably would have the same results if you have done nothing to a 4.0 to 4.5 ascending aorta.

You should change the focus of the paper: it could be useful but only time will tell.

Answer: Yes, you are a really cardiac surgeon. There study enroll the patients from 2015 to 2019, and only 4 year, it is too short for one clinic reasearch. But we already do our best for it because follow up, it very difficult for us to follow up, many patient maybe missed after discharge from hospital after them feel good. The patients didn't have family doctor in our country, so we must spent lots of time to contact this patient by telephone or letter or policeman to make sure she or he is survival or died, or the reason about died.

Cases of aneurysms near the limit of the surgical indication are really a dilemma for the cardiac surgeon. especial for bicuspid aortic valve patient. Although the guideline suggest the aortic will be deal during aortic valve repair or replace when the diameter over 4.0cm. but the wrap or wheat or bentall, which one will be better for patient. I do not know. Many ascend aortic will
become aneurysm after small size aortic valve had been replaced, these patient should be wheat or wrapping when the first surgery? Every small size aortic valve patient should replace the ascending aortic or wrapping it no matter the aortic diameter? The problem we solve less than we face. the "wrap" procedure maybe a solve method for some patient, it was the take home massage. it could be useful or not, but only time will tell us.

Reviewer #5: Dear authors,

Thank you for submitting this original scientific manuscript to the JCTS. I was pleased to receive it as a reviewer.

This is an interesting article addressing very important research question. Whether to wrap or simply replace ascending aorta remains to be the matter of debate among surgeons. The results you provide may add to the current knowledge by giving us an idea what would be the possible benefits of wrapping aorta.

This is observational comparative study which unfortunately does not provide the best level of evidence. It remains unclear how the patients were selected for each type of procedure. These results would even be much better if you would be able to prospectively randomize these patients. Propensity matching would also add additional value to this research, but I am afraid you are simply under powered for such an approach to the existing data.

In "Methods" section you declare that IRB approval was obtained and individual patient's consent was waived. Few sentences later, you write the following: "Following approval from the ethical committee and signing of written consent forms...". This does not make a sense to me. Please clarify. The study was retrospective observational, so I assume there was no signed written consent forms. The text throughout the document should be consistent and I ask you to clarify whether or not you used written consent forms.

All the "wrap" procedures were performed by one surgeon. Here the question is whether this surgeon is more experienced surgeon doing more cases per year for a many years more? If so, this could be a significant bias to the results you report as the results may present single surgeon performance difference rather than advantages provided by the surgical technique as such. Only wrapping was present in 45% of patients and was clearly done by single surgeon which raises the question of the single surgeon caseload. This may be a significant bias to the results and indeed needs to be clarified.

Furthermore, patients undergoing concomitantly to mitral valve repairs surgery should inevitably be excluded as this may significantly influence the reported results such as cross clamp time and reasonably chest tube output.

"Discussion"
The "Discussion" section is wide and lacking focus to the research question. Authors should be able to provide the answers to the questions like:

1) What are the results and what conclusions can we draw based on the results?

2) What are the study methodological flaws and do these methodological drawbacks allow for meaningful conclusions?

3) What is already known in this field?

4) Which patients may benefit from one type of procedure? Maybe older patients? If so, why "wrap" patients tend to be younger??

5) You had more mitral valve procedures in "wheat" subgroup. Even though the difference is not significant we may not say this is irrelevant as the study was underpowered to estimate significance of this difference. This is interesting and is in collision to the general philosophy we have for "wrapping" procedures. "Wrap" patients tend to be younger and to have less combined procedures involving mitral valve repair. Without addressing this in "discussion" and declaring this as a serious drawback we may easily conclude that herein you compare one "wrap" surgeon to the others. "Wpar" surgeon does majority of cases (45%) and tends to operate younger patients and less complex cases. Case load, patients' age and combination with mitral valve repair certainly makes the difference and could easily explain the observed differences. This needs to be addressed, otherwise the results could not be interpreted meaningfully.

Answer: thank very much for your professional review. From one side, this article is not a strict RCT research or retrospective. In our center, no every cardiac surgeon regard "wrap" procedure as best choice for these patients. because replace the ascending aortic is no very difficult for us after the aortic valve were replace, and the "wrap" procedure just save clamping time and CPB time, the other obtain a benefit from leave the patient with his own aorta,rather than with an artificial material. so, the "Jiang" group preference "wrap" procedure and other cardiac surgeon like "wheat". All cardiac surgeon just want to know the really follow result about the "wrap" vs"wheat", so we start this retrospective study and submit the "the application form" to our IRB, in order to investigate patients clinic data about echocardiography, operation record data, et al. The patients electronic detail record were locked by the department of medical record after the patient discharged. All the author signed consent forms about forbid use the patients medical record to other work except this investigate. Maybe i didn't clear describe the content about "consent forms" . i will modify this.

No matter the "wrap" surgeon or"wheat" surgeon , everyone is rich experience in operation. The reason about why only one surgeon finish "wrap" procedure, as he regard "wrap" is super. if all patient finish by he, some surgeon worried about there will be some deviation bias in the results showed the " wrap" better than "wheat". so just one "wrap" surgeon. Every surgeon had do them best in surgery, and the medical records is real and trusted.
Some severe aortic valve regurgitation usually associated with mitral valve regurgitation, so we had no excluded it. The number is limit and no real influence on result included CPB time and Clamping time. The most important follow up result is our care about.

Maybe the age in the "wrap" group look "young", but it is no statistic difference and meaning nothing. you give me suggest is very important for modify "Discussion" section. I had modify this section as your advice as my possible. I just want to show our detail about experience deal with BAV patient with mild ascending aortic aneurysm. i will add "limition" section.

Thank you very much.