Peer Review File
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Reviewer 1

I would like to congratulate the authors for their interesting and informative study.

This is a single-center, retrospective cohort study investigating intraoperative and short-term postoperative outcomes of minimally invasive, on-pump multivessel coronary revascularization through a left anterior thoracotomy. In total, 521 patients who underwent the above procedure, with 3 grafts on average, were included in the study. In the series, the mortality rate was as low as 0.57%, there were only 2 conversions to sternotomy, and there were no postoperative myocardial infarctions. Total operating time, cardiopulmonary bypass time, and aortic cross-clamp time were acceptable. Of note, the mean intensive care stay was 2.1 days, and the mean total hospital stay was 5.9 days.

My only suggestion to the authors would be to present their intra- and post-operative outcomes in a table.

Reply: Thank you very much for appreciating our study. Based on your suggestion, we've added a table with intraoperative and postoperative outcomes, see Page 8, Line 244-245 ("Main operative and postoperative outcomes summarized in table 2. Table 2. Operative and postoperative characteristics.

Reviewer 2

The surgical results are similar to less invasive OPCABG. Your policy is very adaptable and well standardization. Your procedure is one option of CABG fields. Thank you for your hard work.

Reply: We are sincerely grateful for the appreciation of our work

Reviewer 3

The authors are congratulated for their work on multivessel minimally invasive on-pump coronary revascularization through the left anterior thoracotomy.

Please consider citing all abbreviations full out in the manuscript when mentioned for the first time. This will increase the readability.

Next step of research is to be a randomized protocol between minimally invasive procedure and routine intervention.

Reply: We are sincerely grateful for the appreciation of our work.

We defined missed abbreviations, see Page 1, Line 28 ("coronary artery bypass grafting (CABG)") and Page 1, Line 30-31 ("Total coronary revascularization via left anterior thoracotomy (TCRAT) technique.")

We are working on the possibility of creating a randomized study, but at the moment this study is very difficult to organize in our country.

Reviewer 4

This manuscript presents the early results of an innovative new minimally invasive approach to surgical revascularization in multi-vessel coronary heart disease, and it describes special technical details, tips and pitfalls of the operation. The main difference and probably main advantage in comparison to standard CABG is the avoidance of sternotomy.

It comprises the largest series of TCRAT-patients published so far, and the presented early results are excellent in every respect. However, mid-term and long-term data are missing. The authors should discuss the importance of long-term outcome with respect to their suggestion that the procedure could be applicable to the majority of patients undergoing CABG for multi-vessel disease.

Beside early results, the main focus of the manuscript is a detailed description of the surgical technique including important key steps, comprehensible described in the text and didactically illustrated in the video with an impressive clearness.

The authors should be congratulated to their pioneering work on the field of minimally invasive coronary surgery.

Reply: Our team is sincerely grateful to you for the appreciation of our work. In this study, we focused on the practical aspects of TCRAT technique and wanted to convey the possibility of routine use of this technique. In the following studies, we will focus our interest on medium and long-term results.

Reviewer 5

The authors present a study, where they evaluate the outcomes of the multivessel minimally invasive on-pump coronary revascularization through the left anterior thoracotomy. The authors should be congratulated for their results as this is a very timely topic since, the future of stable low risk CABG will be MICS CABG. However, I have several comments:

-The authors previously published their series, "From July 2017 to March 2019 in 229 consecutive patients with isolated multivessel coronary artery disease we performed complete coronary revascularization through the left anterior minithoracotomy (6-8 cm skin incision)" in the Seminars in thoracic and cardiovascular surgery. Although they now included more number of patients gathering additional 3 years, the results are comparable with similar conclusions and the surgical technique is too described. Semin Thorac Cardiovasc Surg. 2020 Winter;32(4):655-662.

- Lines 29-31 32-34 paragraphs are duplicated.

- In the discussion you should mention the difference between Off-pump and On-pump MICS CABG so as in the limitations.

- No long-term follow up is performed. This should be also mentioned in the limitations since the results of any CABG procedure and its efficacy are evaluated through long-term results rather than in-hospital results.

Reply: Our team is sincerely grateful to you for the appreciation of our work.

- In this study, based on our experience, we expanded and supplemented information on all aspects of surgical technique, focused on possible complications and tried to demonstrate a clear algorithm for the use of this technique in routine practice. We plan to investigate long-term results in future studies.
- We deleted duplicated paragraph, see Page 2, Line 53-55
- The study group did not include patients with porcelain aorta, which are clearly a contraindication to this technique and described in section Methods and section Discussion, Line 97 – 108, 316 – 319.

Editorial Comments

1. How did the authors say that they performed 531 multivessel CABG? We can't find it based on the Methods.

Reply: We reorganized our Method and Results in order to better explain types and quantities of procedures performed.