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OPEN PEER REVIEW

Comparative Study of Surgical Complications in Atrial Septal Defect Repair: Right Anterior Mini-thoracotomy Versus Classic Midline Sternotomy

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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Contents

1 **Original submission** Referee 1, Associate Editor, Editor-in-Chief 2
2 **Revision 1** Associate Editor, Editor-in-Chief 3
Authors' reply to reviewers 4
Reviewer and editor comments 9

1 Original submission

3 comments · 3 Dec 2024 – 9 Feb 2025

Referee 1 Reviewer

REJECT 3 Dec 2024

Dear Authors,

I would like to begin by expressing my appreciation for the effort and research that have gone into your manuscript. The study addresses an important topic, and the results are valuable. However, after reviewing the manuscript, I believe that certain areas require further clarification and improvement to enhance the clarity and reproducibility of your findings.

The method section is one of the most important parts of any scientific paper, and it should be written in a clear and detailed manner so that any other researcher can replicate the methods by reading it. In your manuscript, this principle has not been fully adhered to.
1) The description of the surgical procedure needs further clarification and more details to make it completely understandable for the reader.
2) Furthermore, there is no explanation provided regarding how balance was established between the case and control groups. This issue creates ambiguity and could potentially affect the validity of the conclusions. I recommend that this section be revised to provide a more thorough and clear explanation, ensuring the reliability of the results and conclusions.
3) The baseline information provided regarding the characteristics of the study participants needs more detail.

Thank you for submitting your manuscript entitled "Comparative Study of Surgical Complications in Atrial Septal Defect Repair: Right Anterior Mini-Thoracotomy versus Classic Midline Sternotomy" to the International Cardiovascular Research Journal.
Unfortunately, your manuscript does not meet the necessary criteria to be considered for publication in this journal.

I appreciate you submitting your manuscript to this journal and giving me the opportunity to consider your work.

Associate Editor

MAJOR REVISION 9 Feb 2025

major revision

Editor-in-Chief

MAJOR REVISION 9 Feb 2025

Please make the revisions and resubmit the paper ASAP.

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear editor of the International Cardiovascular Research Journal

We are very excited to have been given the opportunity to revise our manuscript, which entitle, “Comparative Study of Surgical Complications in Atrial Septal Defect Repair: Right Anterior Mini-Thoracotomy versus Classic Midline Sternotomy” for the International Cardiovascular Research Journal. We carefully considered your comments as well as those offered by the reviewers. Herein, we explain how we revised the paper based on those comments and recommendations. We hope that these revisions improve the paper such that you and the reviewers now deem it worthy of publication in the International Cardiovascular Research Journal.

Best regards

Reviewer 1:

The method section is one of the most important parts of any scientific paper, and it should be written in a clear and detailed manner so that any other researcher can replicate the methods by reading it. In your manuscript, this principle has not been fully adhered to.

1) The description of the surgical procedure needs further clarification and more details to make it completely understandable for the reader.

The surgical procedure section rewrite and add in the manuscript.

2) Furthermore, there is no explanation provided regarding how balance was established between the case and control groups. This issue creates ambiguity and could potentially affect the validity of the conclusions. I recommend that this section be revised to provide a more thorough and clear explanation, ensuring the reliability of the results and conclusions.

The patients were divided into two groups: a median sternotomy group (50 patients) and a right atrial mini-thoracotomy group (20 patients). In order to ensure that any observed differences between the two groups were not confounded by underlying differences in patient characteristics, propensity score matching was used to balance the groups with respect to key baseline variables such as age, gender, comorbidities, and ASD size.

3) The baseline information provided regarding the characteristics of the study participants needs more detail

More baseline variable add in the table

Reviewer 2:

Abstract

Method:

Add the sample size in each group: it was added

Add the statistical test and software it was added

Results:

Add the SD in mean age.it was added

Main body :

Results :

Add the SD in mean age. It was added

Add the p-value for the significance level e.g (P<0.001 or p=0.005) It was added

Reviewer 3:

-More in-depth detailing is needed regarding patient selection criteria and the decision-making behind surgical approach selection.

Patient Selection Criteria:

We retrospectively analyzed the medical records of 70 patients who underwent surgical repair of atrial septal defect (ASD) between July 2020 and December 2023. The inclusion and exclusion criteria for patient selection were as follows:

1. **Inclusion Criteria**:
    - Patients diagnosed with atrial septal defect (ASD), either isolated or in combination with other valvular abnormalities such as tricuspid valve insufficiency.
    - Both adult male and female patients who were clinically stable and fit for surgery.
    - Patients with no significant mitral insufficiency or no interventricular wall defects.
    - Patients with pulmonary pressures < 6 mmHg, as assessed by echocardiography or catheterization.
2. **Exclusion Criteria**:
    - Patients with severe pulmonary hypertension (pulmonary pressure ≥ 6 mmHg).
    - Severe mitral insufficiency or significant left-sided heart failure.
    - Uncontrolled arrhythmias, contraindicating safe anesthesia or surgery.
    - Patients with severe comorbidities, such as uncontrolled diabetes, severe chronic obstructive pulmonary disease (COPD), or advanced renal disease, which may increase surgical risk.

Surgical Approach Decision-Making:

The decision regarding the surgical approach for ASD repair (either median sternotomy or right atrial mini-thoracotomy) was made based on a combination of patient factors, anatomical considerations, and surgeon expertise. The following factors influenced the decision-making process:

1. **Anatomical Considerations**:
    - Size and location of the ASD: Larger defects or those located in challenging positions may be more easily accessed via median sternotomy, whereas smaller, more accessible ASDs may benefit from the minimally invasive approach.

- Presence of associated conditions: Patients with significant tricuspid valve insufficiency or other right-sided heart conditions were often more suited for the traditional median sternotomy approach, which allows for a more comprehensive exposure of the heart.

2. **Patient Factors**:
   - **Age and comorbidities**: Younger patients and those without significant comorbidities (e.g., hypertension, diabetes) were more likely to undergo the minimally invasive approach. Older patients or those with multiple comorbidities might have been recommended for the conventional sternotomy approach due to its more extensive exposure and familiarity to the surgeon.
   - **Body habitus**: Patients with a smaller chest size or those with a more favorable anatomical structure (e.g., easier access to the right atrium) were considered better candidates for the right atrial mini-thoracotomy approach.
   - **Patient preference**: Some patients expressed preference for a minimally invasive technique due to concerns about recovery time and cosmetic outcomes. These preferences were taken into account during the consultation.
3. **Surgeon Experience**:
   - The final decision was also influenced by the surgeon's experience and expertise. The single surgeon performing all surgeries was proficient in both techniques, but the decision on the approach was guided by the individual patient's needs and the surgeon's assessment of the best option for achieving a successful outcome.
4. **Clinical Judgment**:
   - The choice of surgical approach was also guided by clinical judgment in relation to intraoperative findings, such as difficulty accessing the heart or any unexpected complications encountered during the procedure.

-More explicitly address the limitations inherent in the retrospective design, potential biases, and the implications these might have on the study's conclusions

Selection Bias: Since the study relies on records from patients already undergoing surgery, there may be a selection bias in the types of patients who were considered for each approach. For example, the decision to use median sternotomy versus right atrial mini-thoracotomy could have been influenced by factors that were not controlled for (e.g., patient preference, surgeon experience, or the severity of ASD).

- Confounding Factors: Other factors not accounted for, such as the severity of the ASD, comorbid conditions, or other anatomical considerations, may impact the surgical approach and the outcomes. These factors could skew the comparison between the two groups (e.g., one group may have had more complicated cases).

- Lack of Randomization: Since the choice of surgical approach was based on surgeon preference rather than randomization, there is potential for systematic differences between the two groups, which may confound the results. Randomized controlled trials (RCTs) would eliminate this source of bias, though RCTs are often not feasible for surgical approaches.

• Data Incompleteness: The use of retrospective data also raises concerns about incomplete or inconsistent medical records. Missing data on important variables could compromise the validity of the analysis and introduce bias.

The study's findings should be interpreted with caution due to these inherent biases. Any observed differences in outcomes between the two surgical approaches could be due to uncontrolled factors, rather than solely the approach itself. Thus, while the study provides valuable insights, it is difficult to draw definitive conclusions about which approach is superior without prospective randomized trials.

-Rectify minor typographical errors for clarity and professionalism.

We have thoroughly proofread the manuscript and rectified minor typographical errors to enhance clarity and professionalism.

Major Comments:

The abstract lacks detailed information on the selection criteria for participants, which is crucial for understanding the study's validity and applicability.

Thank you for your insightful comment. We acknowledge the importance of clearly specifying the selection criteria for participants to enhance the study's validity and applicability. In response to your feedback, we have revised the abstract to include a brief but clear description of the participant selection criteria. Additionally, we have ensured that the methodology section provides a more detailed explanation of the inclusion and exclusion criteria. We believe these revisions improve the clarity and comprehensiveness of our study.

The methods of measuring the variables are not described, which raises questions about the reliability and accuracy of the reported outcomes.

Thank you for your valuable feedback. We acknowledge the importance of clearly describing the methods used to measure the variables. To address this concern, we have revised the methodology section to include a detailed explanation of the measurement procedures. Specifically, we have provided information on the instruments used, and the data collection process. We believe these additions enhance the clarity and accuracy of our study and ensure the reliability of the reported outcomes.

Minor Comments:

The setting of the study is not explicitly mentioned, which could provide context for the study's generalizability.

Thank you for your valuable feedback. We recognize the importance of explicitly stating the study setting to provide better context and enhance the understanding of its generalizability. In response to your comment, we have revised the manuscript to clearly specify the study setting in both the abstract and methodology sections. This addition ensures that readers can better assess the applicability of our findings to different contexts.

The abstract does not specify the statistical methods used to determine the significance of the results

Thank you for your insightful feedback. We acknowledge the importance of specifying the statistical methods used to determine the significance of the results. In response to your comment, we have revised the abstract to include a brief mention of the statistical tests employed in the analysis. Additionally, the methodology section provides a more detailed explanation of the statistical approaches used to ensure the rigor and reliability of our findings. We believe these revisions enhance the clarity and transparency of our study

2 Revision 1

2 comments · 16 Apr 2025 – 16 Apr 2025

Associate Editor

ACCEPT 16 Apr 2025

accept

Editor-in-Chief

ACCEPT 16 Apr 2025

accept