Peer Review File

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Reviewer A

This is a great manuscript which focused on percutaneous closure of atrial septal defects through the right internal jugular vein approach. Treatment options with non-transfemoral approach are required in some case, however, I have some major concern as a first-choice approach site.

Comment 1 : Success rate is low (94.2%). Does this come from procedure site problem? Or ASD morphology? Is transfemoral approach possibly suitable for these failure cases? Did you switch to transfemoral approach in such failure case?

Reply :

Thank you for your comment. The low success rate of echo-cardiography guided percutaneous closure of ASD via the right internal jugular vein can be attributed to its relatively high dependence on ultrasound. With accumulating more experience in both ultrasound and surgeries, the successful rates of the procedure are better in the recent years.

Based on our experience, no significant improvement was observed for these patients through a transfemoral vein approach, who failed via the right internal jugular vein access.

In general, for the patients who failed via the right internal jugular vein, we would switch to trans-thoracic ASD closure. In our series, percutaneous closure of ASD via the RIJV was unsuccessful in 6 patients. Five of these patients were transferred for trans-thoracic ASD closure, which yielded satisfactory results, and one patient refused further surgical treatment.

Changes in the text:

We modified the text as advised and highlighted the text on Page 8 Line 20-22 and Page 9 line 1-14 in the Method section and Page 11 line 2-6 in the Discussion section.

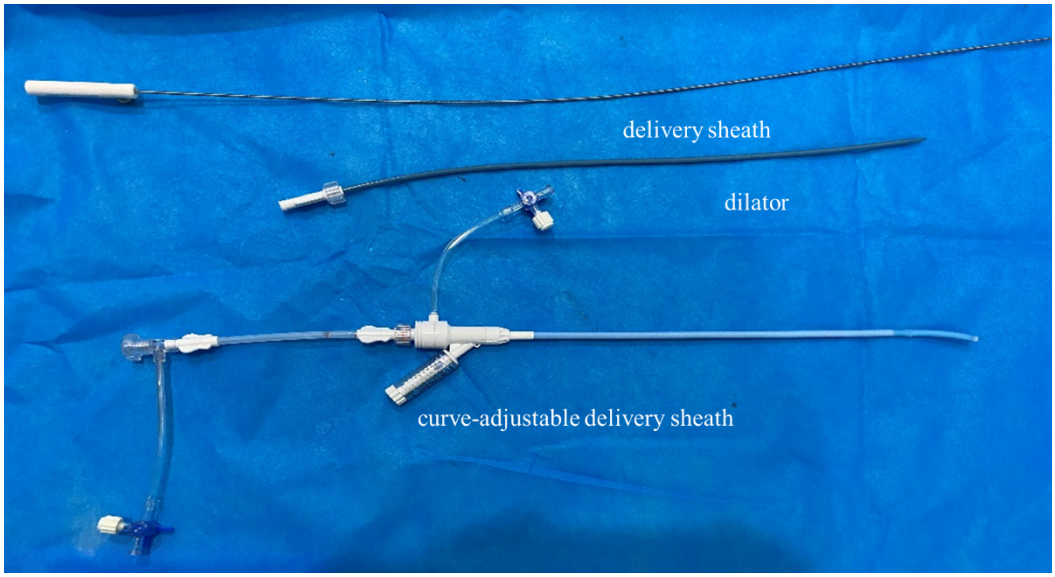
Comment 2. Key fluoroscopy images are required to explain this procedure. The sheath and device should be included.

Reply:

Thank you very much for your comment. We added the pictures of the procedure as Figure 1.

Changes in the text:

The pictures has been added as Figure 1.



Comments 3. Could you show us arrangements in operation room? I attached an example image.

Additional comment:

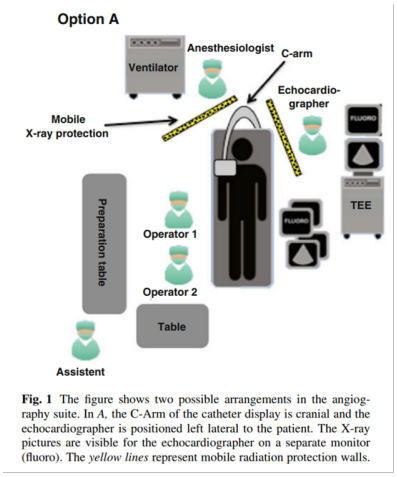


Fig. 1 The figure shows two possible arrangements in the angiography suite. In *A*, the C-Arm of the catheter display is cranial and the echocardiographer is positioned left lateral to the patient. The X-ray pictures are visible for the echocardiographer on a separate monitor (fluoro). The *yellow lines* represent mobile radiation protection walls.

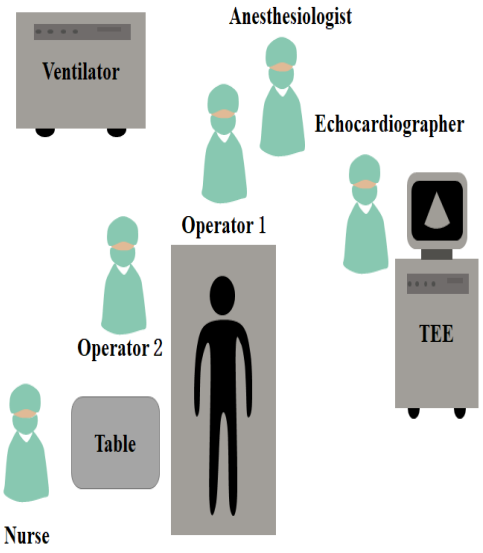
Boekstegers P et al : Clin Res Cardiol. 2014;2:85-96

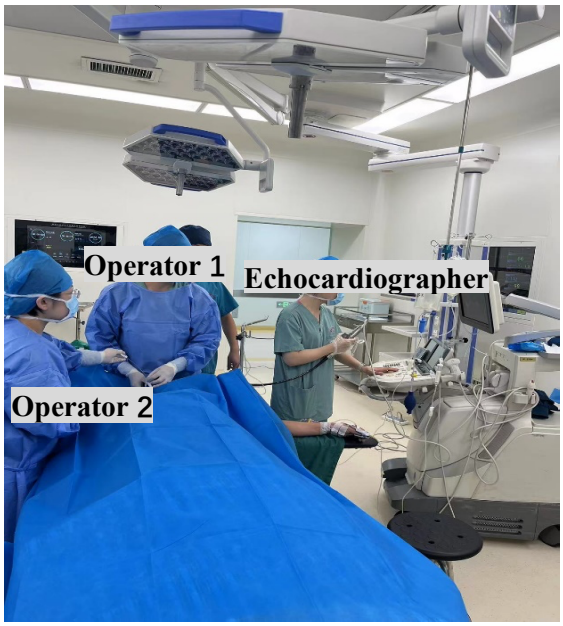
Reply:

Thank you very much for your comment. We attached a picture as example and a true image in our operation room. The picture has been added as Figure 4.

Changes In the text:

The pictures has been added as Figure 4.





Comment 4. What are merits of RIJV approach compared to transfemoral approach? You should show them us using data. Because procedure success ratio is low. Trans femoral approach also has similar short ICU and hospital stay. From cosmetic aspects, RIJV approach site is open to other people. Do patients happy with RIJV approach?

Reply:

Thank you very much for your comment.

Based on our experience, the use of a long delivery system via the femoral artery makes the operation highly challenging and intricate. We truly regret that we did not have enough data to prove that as the transfemoral ASD closure are not routinely carried out in our hospital. We would try to prove that in the future work.

The puncture site in the neck would fully recover in 2 weeks and leave no scar. So no patient has expressed dissatisfaction from cosmetic aspects.

Changes In the text:

The revised text has been added and highlighted on Page 8, Line 19-20. **The pictures has been added as Figure 6.**

Comment 5: Aortic rim deficiency is common in Asian patients. Could you show us

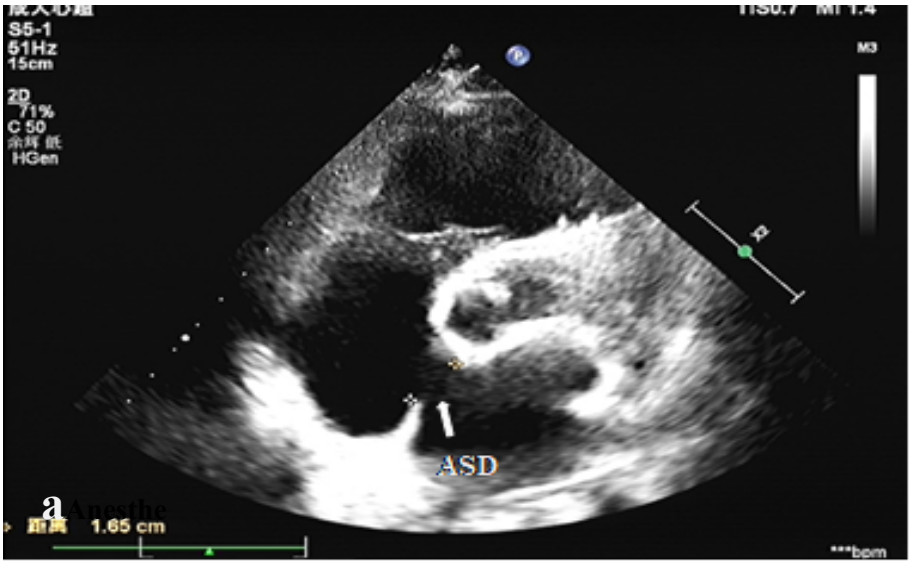
more details of ASD morphology especially focusing on rim deficiency?

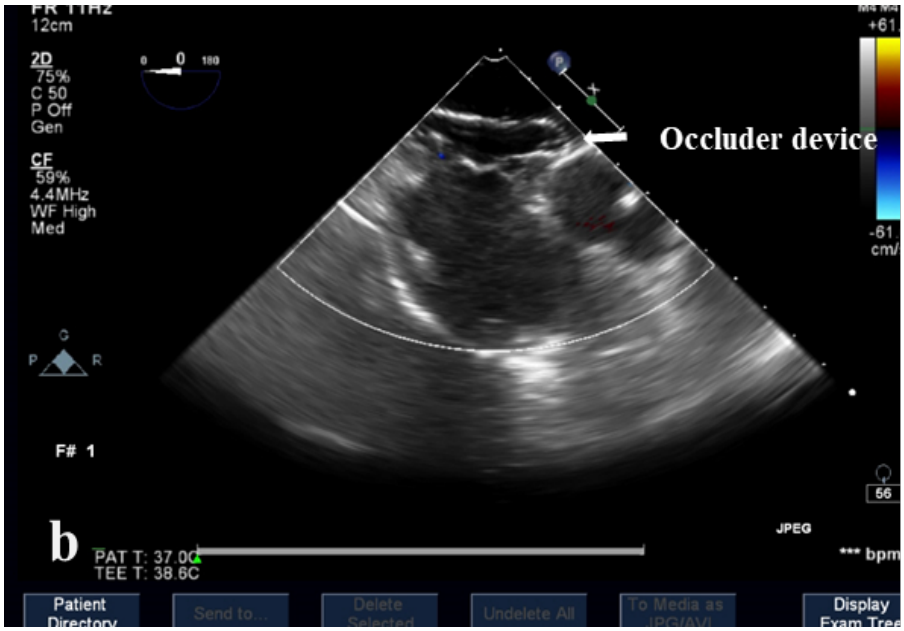
Reply:

Among the 103 cases analyzed, aortic rim deficiency was observed in 10 instances (9.7%). We propose that this should not be considered a contraindication for atrial sept closure, as effective sealing of anatomical characteristics can still be achieved. Even in situations where the superior vena cava margin is exceptionally short, successful occlusion remains feasible.

Changes In the text:

The revised text has been added and highlighted on Page 8, Line 5-7. We added a new paragraph focused on patients with aortic rim deficiency. The pre-operative and post-operative echocardiography image were added as Figure 5





Reviewer B

1. Title: Please highlight the type of this observational study in the Title or the Abstract. This should include not only the reported "retrospective" reporting but also whether the article is a cohort or a case-control or a cross-sectional study.

Reply: Thank you very much. The revised text has been added in the Abstract section on Page 3, Line 11.

2. Abstract-Methods: Please add the key element of study design in the methods section of the abstract, such as the locations (city, country, hospital, department), eligibility criteria for participants, and type of sample enrollment (consecutive, random, or convenience).

Reply: Thank you very much. The revised text has been added in the Abstract-Methods section on Page 3, Line 8-11.

3. "Although studies exist on the efficacy of transesophageal echocardiography (TEE)-guided percutaneous closure of ASD via the RIJV (9), the number of research samples is limited". We kindly suggest the authors compare the results of this study with similar studies (e.g., Ref. 9) in the Discussion, including sample size, safety, and efficacy.

Reply: Thank you very much. The revised text has been added in the Discussion section on Page 12, Line 18-21.

4. Methods: Similar to comment 1, please describe the study design in the Methods, not just "we retrospectively analyzed…".

Reply: Thank you very much. The revised text has been added in the Method section on Page 5, Line 12.

5. Please provide the information about the follow-up (e.g., the methods, the total amount of time) in the Methods.

Reply: Thank you very much. The revised text has been added in the Method section on Page 5, Line 16-18.

6. Methods: We failed to find how authors addressed potential sources of bias in Methods/Para1. For authors' reference, many ways could control potential bias. For example, did the authors arrange two independent partners to include eligible cases (avoid potential selection bias and information bias)? How did the authors address the cases with missing data to avoid potential bias? In the process of software measurement, whether there will be potential bias due to the measurement of different people. Whether the specialist evaluating the imaging data is trained or credentialed (to avoid potential diagnostic bias). If this was not done, please include this as one of the limitations of this study in the discussion.

Reply: Thank you very much. The revised text has been added in the Method section on Page 5, Line 18-21.

7. Methods: Please report whether the P value was a one-sided or two-sided test in the "Statistical analysis".

Reply: Thank you very much. The revised text has been added in the Method section on Page 9, Line 1-2.

8. Results: Authors only present the number of participants of the final stage-"103". We suggest authors consider using a flow diagram to state the number of individuals at each stage, from the selection of potentially eligible ones to the final included ones. Besides, give reasons for non-participation at each stage. Accordingly, report the numbers of individuals at each stage in the context too.

Reply: Thank you very much. The revised text has been added in the Result section on Page 10, Line 20-21. The flow diagram were added as Figure 7.

9. Table 1: Age (years) 36.40 ± 18.51. We recommend that ages be kept in whole numbers.

Reply: Thank you very much. The revised edition has been added as the attachment.

10. Results: "The mean postoperative stay in the ICU was 13.73 ± 16.89 h (range: 0–144 hours)". The data is inconsistent with "13.71 ± 16.89" in Table 2.

Reply: Thank you very much and sorry for the typing mistake. The corrected and revised text has been added on Page 10, Line 7.

11. "P<0.05": If P value≥0.01, report the specific P value to 2 decimal places, e.g., "P=0.03"; If 0.001≤ P value <0.01, report the specific P value to 3 decimal places, e.g., "P=0.001".

Reply: Thank you very much. The revised edition has been added as the attachment in Table 3.

12. Abbreviations used in figures/tables should be defined once again in the legend/table footnote. For example, "ASD" (Figure 2), TEE (Figure 4). Please check the entire manuscript to address similar concerns.

Reply: Thank you very much. We have defined Abbreviations in the figure legend and table footnote.

13. "Transthoracic ASD closure is a modified approach designed to circumvent age limitations and minimize radiation-related injuries. Nonetheless, this method still requires a 1–2 cm incision in the chest wall and is performed in the thoracic region. The minimal invasiveness of the procedure has been questioned". Please cite the references.

Reply: Thank you sincerely. I have added the references as Reference 10 and 11.