Author’s response to reviews

Title: A clinical prediction rule to identify difficult intubation in children with Robin sequence requiring mandibular distraction osteogenesis based on craniofacial CT measures

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Responds letter for Reviewer’s comments

Reviewer 1 :

1. Comment: Perhaps should include a calculation of accuracy of prediction (sensitivity and specificity) using all three measures that were different between groups and provide an alternative score (D6, A5 AND area calculation). Using three parameters may improve specificity as well as area under ROC. I agree that prediction rule using only area is perhaps easier but accuracy is not great.

Response: Thank you very much for your comment. We have used all the three parameters to construct the decision tree model in previous study, but we found that the prediction results are almost the same as those of using only area alone. In consideration of the measurement of D6 is based on soft tissue images, it is vulnerable to the influence of tongue movement, which is not conducive to clinical application. At the same time, considering that not all hospitals have the conditions of three-dimensional reconstruction of CT images, A5 is not conducive to promotion. In addition, it is possible to use non-radiation method to measure the cross-sectional area of the epiglottis tip in the future, so that the radiation caused by CT can be avoided. Considering the above factors, we decided to construct the decision tree model by the cross-sectional area of the epiglottis tip. (page9 line 6-10)
Reviewer 2

1. Comment: It is a very good study although a small sample size to explore the assessment of difficult airway in robin sequence.

Response: Thank you very much for your comment.

Reviewer 3

1. Comment: In general, the English language used needs to be revised by a professional language editing service. A few examples can be found below. Thank you.

Response: Thank you very much for your comment. I will try to improve our English language. I am glad to accept your suggestion in this regard and would like to revise it according to your opinion.

2. Comment: P6L29: "Therefore, it is necessary to find new method to predict whether RS patients have difficulty intubation before MDO."

I think the number of laryngoscopies and intubation attempts would be of interest too. Difficult intubation is not only about grading the view.

In addition, the experience and level (resident, fellow or attending resp. consultant) should be noted and would be important. Please add this information. Based on this information recalculate the statistics and adapt the results.

Response: Thank you very much for your comment. All patients underwent intubation by the same experienced consultant. I had added this information in page 6 line 12-13. I agree that the number of laryngoscopies and intubation attempts would be of interest too. But in our hospital, this information is insufficient. Severe PRS patients themselves have breathing difficulties, which endanger their lives. In order to minimize the airway impact on these patients, our hospital stipulates that laryngoscopies and intubation attempts should not be more than twice. So that we can't get information about patients who have been intubated more than three times. That's why patients were divided into two groups according to Cormack–Lehane classification. Cormack–Lehane score was recorded at the first laryngoscopy and intubation attempt. In this way, this study could avoid affecting patients' treatment outcomes. Your suggestion is very important, so I have added more discussion about the number of laryngoscopies and intubation attempts were not been used for classification of patients. (Page12 line 8-15)
3. Comment: P4L11: "However, the patients have severe TBAO who suffered severe upper airway obstruction necessitates..."

I think this sentence needs to be rephrased: "However, the patients who have severe TBAO often suffer from severe upper airway obstruction which necessitates..."Is that what is meant?

Response: Thank you very much for your comment. I accept your suggestion and revise the sentence at P4L11.

4. P4L33: "... can increase the upper airway size and relieve the airway obstruction safely and effectively, tracheal intubation is necessary before MDO."

This statement is not correct. It might require tracheal intubation for MDO surgery. Patients already having a Tracheostoma will not need intubation. Please correct this sentence. I would suggest 2 sentences.

Response: Thank you very much for your comment. I accept your suggestion and revise the sentence at P4L33.

5. P5L5: "However, some of those prediction methods lack of standard data for children while others are can't cooperated by little babies, so that they are not well applied to RS patients."

Please correct this sentence

Response: Thank you very much for your comment. I accept your suggestion and revise the sentence at P5L5.

6. P5L12: "Therefore, it is necessary to find new method to predict whether RS patients have difficulty intubation before MDO."

I would say it would be helpful or of benefit. Especially since the newly developed parameter requires a CT and this might need sedation of the child. Risk and benefits have to be considered.

Response: Thank you very much for your comment. I accept your suggestion and revise the sentence at P5L12.

7. P5L17: This paragraph already includes parts of the methods. Please strictly separate introduction (current problems and solutions, aim and goal) and method (how and what this study investigated).

In general, I think the introduction needs to be shortened.

Response: Thank you very much for your comment. I accept your suggestion and Some sentences were deleted at P5L17.
8. P6L39: Displayed results of n for the groups belong in the method section.

Response: Thank you very much for your comment. I accept your suggestion and deleted all the “n” and numbers in the method section.

9. P8L15: "According to the test results, A clinical prediction rule was established."

"a"

Response: Thank you very much for your comment. I accept your suggestion and revise the sentence at P8L15.

10. Please add 95% CI for all values where appropriate. Thank you.

Response: Thank you very much for your comment. I accept your suggestion and added 95% CI for all values.

11. P9L53: "We characterized differences in upper respiratory tract morphology between patients with difficult intubation and without difficult intubation RS using clinically available objective measurements using standard CT scans."

The first sentence of the discussion is very important and needs to contain what was done and what was found:

"This study investigated various computer-tomographic measured airway dimension and their correlation with prediction of a difficult airway in patients with RS. The main findings were…..

The next chapter of the discussion should list what is known

The third chapter what the present study found and the clinical impact

Response: Thank you very much for your comment. I accept your suggestion and some sentences were changed in the discussion. The chapters have been changed as your suggestion too, thank you very much.

12. P11L46: "… this is the first study tries to predicting difficult intubation in RS patients before MDO …

Either "that tries to predict" or "trying to predict…"

Response: Thank you very much for your comment. I accept your suggestion and revise the sentence at P11L46.