

Peer Review File

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Reviewer A

Comment 1: Five of 43 patients in the ADM group and 2 of 35 patients in the TV group showed recurrent ventral curvature after the first stage. The authors should describe the definition of recurrent VC. Did the rest of the patients have straight penis?

Response 1: It is true as reviewer suggested that we should describe the definition of recurrent VC. The primary outcome in this study was the occurrence of the ventral curvature or not. The diagnosis of recurrent VC was suspected by clinical examination and then confirmed by artificial erection during the second stage.

If the curvature is $>30^\circ$, ventral lengthening was reoperated, if the VC is $<30^\circ$, dorsal plication was performed for those patients. And no other patients were examined and reported to have postoperative VC after first stage.

We have re-written this part according to the reviewer's suggestion

Changes in the text: please see page 8 line 11-15.

Comment 2: Did the operator measure curvature with a protractor at the second stage operation?

Response 2: All the patients underwent the objectively measurement using protractor at each step when ventral lengthening needed and verified by the repeated artificial erection, including at the second stage operation.

Changes in the text: none

Comment 3: The degree of curvature at the second operation should be described as well as the preoperative degree of curvature shown in Table 1.

Response 3: Here we present 4 images, normally we will perform over-lengthening for the VC, due to the concern of the corporal disproportion and skin tethering, this maneuver may decrease the curvature.

The degree of curvature has been present in the manuscript. Page 9 line 17-23 to page 10 line 1-3.

Only 7 patients have been detected with curvature, we do not find the other curvature. The data is not much enough to comparison and lack of consistency.



Changes in the text: Other changes: Page 9 line 17-23 to page 10 line 1-3.

Comment 4: Line 29. TV repair → tunica vaginalis (TV) repair

Response 4: Page 3 Line 15 TV repair were corrected as “**tunica vaginalis (TV) repair**”

Comment 5: Line 169. 35 → 45.7 (See Table 1)

Response 5: Page 9 Line 13 “35” were corrected as TV group was “**45.7**” (from 30 to 90) degrees

Reviewer B

Comment 1: What guided the surgeon's decision to use ADM or TV? Does not appear that this was randomized.

Response 1: This is not randomized research; it is retrospective study with non-matched control trying to demonstrate the efficiency and feasibility of the acellular dermal matrix in repairing the defect after the ventral curvature lengthening.

Initially, we chose the tunica vaginalis to repair the defect left by the ventral lengthening, but for some patients, especially for the boy who had underwent orchidopexy, the TV flap was very hard to dissection. And more important, TV flap will be reserved to be mobilized and covered the midline suture line as the barrier coverage at the second stage urethroplasty. This will let us focus on the substitute materials. The other reason prompted us to choose the ADM was the cosmetic choice, we found the penis looked less plump when using the TV flap.

We realize that there is selection bias for the study design. We agree that randomized control study may let us draw the convinced conclusion.

Comment 2: How was curvature measured?

Response 2: Until now, as we know, this is not a standard assessment to the ventral curvature in the published literature. Protractor and goniometer have been used to gauge the degree of the curvature subjectively performed by the surgeons. There is much difference between different surgeons even for the same patient. To decrease the interrater bias, we use the protractor to measure the degree for all the patients by a single surgeon in each artificial erection test steps (first stage and second stage) (page7 line12). We know that there were visual estimates to the curvature, which conforms to the practice of most surgeons when measuring the degree of curvature. When we started off this study from 2013, we used the protractor, and soon realized the subjectively visual assessments underestimated curvature. But we still need more objective methods, carefully assess for the curvature.

Comment 3: For patients with recurrent curvature at the time of the second stage, what defined recurrent curvature? What degree of curvature was felt significant enough to take additional measures?

If a patient had 20 degrees of curvature at the time of the second stage, was that considered a success?

Response 3: Considering the reviewer's suggestion, we have defined recurrent curvature. We performed the artificial erection for all the patients before the second stage urethroplasty. The primary outcome was the ventral curvature correction, we agree with the reviewer's comments, so we revise the manuscript.

If the 20 degrees of curvature left at the second stage, we think this is not success, we will straighten the curvature by dorsal plication.

Changes in the text: please see page 8 line 11-15. Page 9 line 17-23 to page 10 line 1-3.

Comment 4: For the patients that had additional measures to correct curvature at the time of the second stage, what happened to them? Were they in the small group of patients that had persistent curvature long term? There is a need to determine if the measures that were taken at the time of the second stage were adequate to correct curvature long term.

Response 4: Corporal disproportion or contracted neourethra was found in these 2 patients with persistent VC in ADM group or TV group respectively, staged urethroplasty with the buccal mucosa had been performed for this patient.

Changes in the text: please see page 10 line 12-14.