Peer Review File

Article information: https://dx.doi.org/10.21037/tau-22-852

Review Comment-Reviewer A

1) First, the title needs to indicate the efficacy and safety, and the clinical research design of this study, i.e., a case series or a retrospective cohort study.

Reply: Thank you very much for your suggestion. We have revised the title to "Efficacy and safety evaluation of the scrotal skin transfer method in the treatment of pediatric concealed penis: a prospective clinical study" (see Page 1, line 2-3)

2) Second, the abstract needs further revisions. The background did not indicate the limitations of traditional treatments for pediatric concealed penis, analyze why new method is potentially effective and safe, and describe the knowledge gaps on its efficacy and safety data. The methods need to describe the inclusion of subjects, follow up procedures, and measures of efficacy and safety outcomes, respectively. The results need to describe the clinical characteristics of the study sample, and by using detailed figures and P values (i.e., post- and before- comparisons) to quantify the findings. The conclusion needs detailed comments for the clinical implications of the findings.

Reply: Thank you very much for your suggestion. We have revised the abstract according to your suggestion, and this part has been changed to "**Background**: Pediatric concealed penis affects penis development and the psychological health of the children. Current surgical methods tend to retain too much of the inner foreskin plate, resulting in unsatisfactory appearance and postoperative complications. We aimed to investigate the efficacy and safety of a new surgical intervention method using a scrotal skin transfer instead of the external foreskin plate to treat pediatric concealed penis.

Methods: Thirty-seven [37] children (aged between 3 and 9 years and 3 months) diagnosed with concealed penis admitted to our hospital between June 2020 and June 2022 were treated with the new surgical intervention method of scrotal skin transfer. A follow up of 6 months to 1 year was conducted in all patients. Postoperative penile appearance, penile skin color difference, and degree of satisfaction with the penile appearance were used to evaluate the efficacy of surgery, and the postoperative complications (penile retraction and penile skin edema) were collected to observe the safety of treatment.

Results: The penile skin color was consistent, the penile scrotal angle and the penile pubic angle were formed naturally, and the penis was completely exposed in 37 children post-surgery. All children have no recalcitrant penile skin edema or penile retraction during follow-up, and the penises have the aesthetically pleasing appearance and a high parental satisfaction rating.

Conclusions: The scrotal skin transfer method shows remarkable efficacy and safety without apparent complications and results in a penis that is fully exposed and aesthetically pleasing." (see Page 2, line 26-48)

3) Third, the introduction of the main text needs to describe how the new surgical treatment was developed and the authors' experiences on its efficacy and safety. Please indicate the novelty of this new treatment, i.e., whether foreign and other physicians have used similar method for treating concealed penis. The authors need to analyze the safety of this new treatment.

Reply: Thank you very much for your comment. We have completely revised the "Introduction" section according to your suggestion. (see Page 3-4, line 64-92)

4) Fourth, in the methodology of the main text, please describe the clinical research design, sample size estimation, the assessment of baseline clinical characteristics, follow up procedures, and the measures of efficacy and safety outcomes in detail. The authors need to use a separated paragraph to describe the statistical analysis methods, including software, how the data were described and compared, and P value for statistical significance.

Reply: Thank you very much for your suggestion. We have added the follow-up procedures as follow "All patients were followed up at 6 months post-surgery by outpatient interview. The postoperative complications (penile retraction and penile skin edema), postoperative penile appearance and skin color, and degree of parental satisfaction were collected during follow-up." (see Page 6, line 155-159)

The study did not collect more clinical data due to the flaw in the study design. Besides, the data of this study are relatively simple, and mostly of then were mean and the number of cases, without comparative analyses between or within groups. It not suitable to added a separate paragraph for statistical analysis. We also discussed these limitations in "Discussion" section as follow "This study also has some limitations. The sample size and the number of indicators were small in this study. There is no control group in the study, so it is impossible to compare the efficacy of this method intuitively. The relevant conclusions need to be further verified with larger sample size and more indicators, and setting up a control group in the subsequent researches." (see Page 9, line 262-267)

Review Comment-Reviewer B

The authors report their experience in treatment of pediatric concealed penis. The surgical method may present some innovation, and the reported cohort is of noticeable size.

However, the lack of an accurate description of the disease evaluation and the outcomes analysis appears too meaningful to recommend publication.

The extremely positive conclusion given by the authors is even more worrisome considering those serious limitations.

Reply: Thank you very much for your review. According to your suggestion, we have carefully and thoroughly revised our manuscript in the hope that it can satisfy the publishing requirements of scientific research articles. We also replied to your questions point to point.

Introduction

It is a little surprising to find a table appealed after 6 lines of the introduction. If this is the classification used in the study, report in the Method section. Otherwise, the source of this classification is unclear, please provide reference.

Reply: Thank you very much for your suggestion. Due to it does not involve data analysis, results and discussion, Table 1 has been removed in the revised manuscript.

Reference 5 (l.73) refers to adult-acquired buried penis. Does the author suppose that the reported complications are similar between congenital buried penis and adult-acquired?

Reply: Thank you very much for your suggestion. We have changed corresponding references (see Page 12, line 343-344)

In most surgery, surgeon often leave too much of the inner foreskin plate (l.74). Please provide a reference for this assumption.

Reply: Thank you very much for your suggestion. We checked the content of this sentence. Because of the repetition with the previous sentence, we deleted this sentence. The previous sentence provided relevant literature.

l.89 Sentence rather belongs to the method section

Reply: Thank you very much for your suggestion. This sentence was added at the end of the "Introduction" section according to the requirements of Journal.

Methods

Some results are reported in this section: median age, type of concealed penis. An accurate report of the outcome's evaluation is missing.

Reply: Thank you very much for your suggestion. We have added the "2.4 Observation indicators" and "2.5 Statistical analysis" sections to describe surgical outcome indicators and statistical methods. (see Page 6, line 169-174; Page 7, line 185-189)

Results

Please provide a dispersion index (SD, IQR) for all variables in text and tables.

Reply: Thank you very much for your suggestion. We have provide the SD value in the revised tables. The ages were displayed in the median, and the maximum and minimum values were also provided. (See Table 1-2; Page 7, line 191-198)

Length of effective follow-up is an important data to report for interpretation.

Reply: Thank you very much for your suggestion. We collected the children with concealed penis from June 2020 to June 2022 for this study. Because some patients completed the surgery on a relatively recent date, the follow-up procedure is still in progress. The present follow-up procedure collected the appearance and length of the penis, the satisfaction degree of the parents, and the postoperative recovery. We also stated it in the "Discussion" section as follow "Because some patients were included in the study for a short time, we only has complete data of 6 months follow-up. The long-term outcomes of surgery were lack. The follow-up procedure is still in progress. We will continue to observe the effect of surgery in the later stage." (see Page 10, line 294-298)

The authors reported in the introduction a Table of buried penis classification but did not use this classification to describe their population.

Reply: Thank you very much for your suggestion. The types of concealed penises in patients were not collected. We have removed the relevant contents of Table 1.

The authors report that "The penile scrotal angle and the penile pubic bone were completely established, body fully exposed (l.163-164)"; or "aesthetically pleasing appearance and high satisfaction rating" (l.165-66).

The measurements of those results are largely unclear. Did the authors use a post-operative questionnaire, who did the evaluation, when?

Reply: Thank you very much for your suggestion. The postoperative follow-up questionnaires were used to evaluated the penis appearance and parental satisfaction after 6 months, of surgery. Follow-up questionnaires were jointly completed by doctors and parents of patients. We have supplemented the follow-up procedures as follow "The questionnaires were applied to collected the penile appearance and degree of parental satisfaction. Follow-up questionnaires were jointly completed by doctors and parents of patients." (see Page 6, line 180-182)

Discussion

l.169 "concealed penis is a common pediatric disease", and l.53 "incidence of approximately 0.68%" seems conflicting.

Reply: It has been changed to "Concealed penis is a common pediatric urological disease" (see Page 8, line 225)

In general, the discussion focuses mainly on surgical technical aspects and very little on the methodological aspects and the results. Overall, 110 lines of this 210 lines article are dedicated to the description of the surgical technique, and discussion of the surgical subtleties, illustrating the lack of description of methodology and interpretation of the outcomes.

In our opinion, the lack of long-term evaluation is an important limit to discussed, and the authors may consider the possible hairiness of the penis due to scrotal skin transfer, that would only reveal after puberty.

Reply: Thank you very much for your suggestion. We have simplified the "Discussion" section, and added the discussion about our methods and results. Due to limiting time, the long-term changes of penis were lack, and follow-up procedure is still in progress. We predicted the penile state of the patient after puberty as follow "If the patients have a large amount of hair on the ventral side of the scrotum after development, laser hair removal can completely achieve the effect to inhibiting the growth of hair." (see Page 9, line 260-262)

Review Comment-Reviewer C

TAU-22-851-R1 Efficacy and safety evaluation of the scrotal skin transfer method in the treatment of pediatric concealed penis: a retrospective cohort study:

Concealed penis (CP) is a relatively rare congenital malformation in children in which an average size penis is hidden in the pre-pubic fat with the glans penis that does not project from the pubic or scrotal skin. This anomaly is attributed to excessive development of the penile dartos fascia retracting the penis inwards, an insufficient attachment of the penile skin to the deep penile tissues at the penile base, and tight phimosis, which is often present, and it is associated with poor cosmesis, difficult accessibility resulting in poor hygiene; social embarrassment with adverse psychological effects on children and their parents, such as anxiety and depression; recurrent balanitis; difficult urination; and secondary phimosis. Many techniques have been documented for correcting penis concealment in children (PMID: 32718276; PMID: 35610128; PMID: 35856348). This study assessed the efficacy and safety of a novel surgical technique for treating concealed penises in pediatric patients.

1) As the authors stated in the introductory part, the purpose of surgery for patients with a concealed penis is to expose the penis buried inside the foreskin, that is, to lengthen the penile shaft and somehow for psychological satisfaction. Indeed, penile appearance and penile skin colour differences should be considered in concealed penis surgery. However, the primary concern for patients/parents is that the penis is hidden inside and therefore needs lengthening procedures. Thus, how did this present surgical method lengthens the penis besides improving penile appearance, penile skin colour difference and parental satisfaction? The surgical

procedure is also too wordy.

Reply: Thank you very much for your suggestion. Our operation exposes the hidden penis, thus extending the length of the penis. We collected the data of the penis length, and compared the preoperative and postoperative penis length in Table 2 (see Table 2; Page 7, line 200-205).

2) Some urologists or researchers are concerned about poor cosmesis associated with scrotal skin transfer due to skin texture, colour and presence of hairs in the scrotal skin, and redundancy of scrotal skin. How did or will the authors address this concern?

Reply: Thank you very much for your suggestion. We have discussed this issue in the "Discussion" section as follow "Given the skin texture, color and hairiness, the cosmetic results associated with some scrotal skin transfers may be poor. We selected scrotal skin with a similar color to the ventral skin of the penis for transplant. The ventral side of the penis is not a visual surface and not easily visible. In addition, a small amount of hair does not affect the appearance of the penis, because it is a common phenomenon in normal adults. If the patients have a large amount of hair on the ventral side of the scrotum after development, laser hair removal can completely achieve the effect to inhibiting the growth of hair." (see Page 9, line 255-262)

3) How is the degree of parental satisfaction graded? Under "follow up", it is not clearly stated or explained.

Reply: Thank you very much for your suggestion. We have added the related description as follow "The questionnaires were applied to collected the penile appearance and degree of parental satisfaction. Follow-up questionnaires were jointly completed by doctors and parents of patients." (see Page 6, line 180-182)

4) There is no statistical analysis for pre-and post-operative satisfaction comparison. How were data obtained from the study analysed?

Reply: Thank you very much for your suggestion. We have added the preoperative and postoperative penis length in the Table 2, and the "Statistical analysis" section (see Table 2; Page 7, line 185-189).

5) Under "results", no baseline characteristics explanation for studied patients exists. There is no explanation or analysis about parental satisfaction regarding penile appearance and degree of satisfaction with penile appearance. What was the outcome of the six months follow-up? Any complications during or after the surgery?

Reply: Thank you very much for your suggestion. We have completely revised the "Results" section and added the clinical baseline data of patients, penis length and complications. (see Page 7-8, line 191-222).

6) Both the introductory and discussion sections contain numerous redundant sentences.
Reply: Thank you very much for your suggestion. We have checked the full text and deleted some repetitive sentences to make it more concise.

7) The manuscript needs thorough editing.
Reply: Thank you very much for your suggestion. The grammar and English writing of the manuscript has been thoroughly revised with the help of an English editor.

Review Comment-Reviewer D

Author prospectively observed efficacy and safety of the scrotal skin transfer method to treat pediatric concealed penis. The results showed that the penile skin color was consistent, the penile scrotal angle and the penile pubic angle were formed naturally, and the penis was completely exposed in 37 children post-surgery. No penile skin edema or penile retraction were found in follow-up. The aesthetically pleasing appearance of the penises obtained high parental satisfaction rating. No similar study is found so far. Study method is reasonable. The project had an ethic authorization. However, following questions need to be address before acceptation.

1. In title, suggest to use “a six-months follow-up data” to replace “a prospective clinical study”.
Reply: We have changed the title to “Efficacy and safety evaluation of the scrotal skin transfer method in the treatment of pediatric concealed penis: a six-months follow-up data”. (see Page 1, line 2-3)

2. Suggest to add a “Six months follow-up” in Key words.
Reply: We have added the key word “Six months follow-up” to Key words (see Page 3, line 55-56).

3. The most important of the therapy of concealed penis is to get normal development of penis. 6 months observation seems to be not longer enough. Why author performed such short term follow-up?
Reply: Thank you very much for your suggestion. Because the inclusion time was June 2020 to June 2022, some patients lacked the follow-up data for more than 6 months. At present, the follow-up procedure is still in progress. We added the explained this issues in the discussion section as follow “Because some patients were included in the study for a short time, we only has complete data of 6 months follow-up. The long-term outcomes of surgery were lack. The

follow-up procedure is still in progress. We will continue to observe the effect of surgery in the later stage." (see Page 10, line 294-298)

4. Is this surgical method created by authors?

Reply: Thank you very much for your suggestion. This surgical method was created based on our surgical experience and referring to relevant literature. We have explained this issue and added relevant documents in the "Discussion" section as follow "In this study, we designed a novel surgical method for concealed penis based on the past surgical experience and reference to the previous study (16)." (see Page 8, line 231-233)

5. Why author did not set up an ordinary surgical control group?

Reply: Thank you very much for your suggestion. Because some data were not statistically analyzed, the previous manuscript lacked a control group. We have rechecked and analyzed the data, the relevant methods and results are shown in the revised manuscript (see Page 4, line 103-111, and the revised Result section)

6. Author did not indicate whether all patients were first time to accept surgeries for concealed penis?

Reply: Thank you very much for your suggestion. All patients did not undergo concealed penis surgery. The relevant description has been supplemented in the method. It has been revised to "3) Children did not undergo surgery for concealed penis." (see Page 4, line 108)

7. Author should compare the scrotal skin transfer method with the routine surgical method in concealed penis patients on local edema, internal plate skin, outer plate skin, and skin color after operation.

Reply: Thank you very much for your suggestion. We have added the results about postoperative complications in the "3.3 Comparison of surgical indicators and complications between two groups" section (see Page 7-8, line 207-222)

8. It is necessary to predict whether the penis development will be affected by the surgery in the long term. Why?

Reply: Thank you very much for your suggestion. We have added the discussion as follow "If the patients have a large amount of hair on the ventral side of the scrotum after development, laser hair removal can completely achieve the effect to inhibiting the growth of hair." and "The development of penis involves appearance and function. Our method ensured the consistency of skin color, and the difference of skin color will be further weakened with the development of patients. The operation did not affect the function of the penis, but only lengthened the length

of the penis from the appearance." (see Page 9, line 260-262, Page 9, line 263-266)

9. Did author get permit to show the pictures from the patients (or his parents)?

Reply: Thank you very much for your suggestion. This study has been approved by Ethics Committee, and the clinical figures only displayed the surgical sites, not contained the patients' face.

Review Comment-Reviewer E

1. **Table 1**

Please indicate in the table legends how the data are presented.

Reply: We have indicated in the table footnote as recommended.

2. **Table 2**

Please indicate in the table legends how the data are presented.

Reply: We have indicated in the table footnote as recommended.