Author’s response to reviews

Title: Should manual detorsion be a routine part of treatment in testicular torsion?

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Author’s response to reviews:

Responses to the comments of the reviewers and the changes made in the manuscript

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Title: Should manual detorsion be a routine part of treatment in testicular torsion?
Dear Editor;

Thank you for your kind collaboration for reviewing our manuscript entitled ‘Should manual detorsion be a routine part of treatment in testicular torsion?’. We appreciate the valuable comments of the reviewers and have made the appropriate changes according to their comments. The corrected manuscript is attached and we hope that our submission will now meet the standards of your esteemed journal.

Sincerely yours,

Arif Demirbas M.D.

Editor Comments:

1. Please add a “Conclusions” section after the “Discussion” section. This should state clearly the main conclusions of the research article and give a clear explanation of their importance and relevance.

Response: The heading of Conclusion has been added at the end of the Discussion section
2. Please represent authors' names using their full initials, not their full name, in the Authors’ Contributions section. If there are any duplicated initials, please differentiate them to make it clear that the initials refer to separate authors.

Response: The names of the authors have been re-written using their initials, as requested.

BMC Urology operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

Reviewer reports:

Mark Ball (Reviewer 1): Dr. Demirbas and colleagues submit a retrospective report on 57 patient patients with testicular torsion in attempt to demonstrate the reliability of manual detorsion. There were 3 cohorts: 1. successful manual detorsion alone (n=20), 2. failed detorsion and emergent orchiopexy (n=28).

The authors state that manual detorsion was successful in 76% of cases.

The goal of the study is laudable, as a non-surgical technique for testicular torsion could theoretically increase the testicular salvage rate; however, I have major concerns regarding the methodology of this study.

1. The authors state that the diagnosis of testicular torsion was made on the basis of decreased or no arterial flow on doppler ultrasound. My concern is that is patient's with decreased flow were included, these may not truly be patients with torsion, which would lead to overestimating the therapeutic benefit of manual detorsion. What was the break down of patients with decreased vs absent flow on ultrasound?

Response: First, we thank the Reviewer for these valuable comments. A total of 57 patients who presented at our outpatients clinic or at the Emergency Department were diagnosed with
testicular torsion. No testicular blood flow was observed on Doppler USG in 20 patients in Group 1 and in 9 patients in Group 3. In 2 of the 28 patients in Group 2, the testicular blood flow on Doppler USG was reported to be severely reduced. These patients were seen to be suitable for clinical testicular detorsion and when explored (unsuccessful manual detorsion in 1 patient, emergency orchiopexy in 1 patient), the diagnosis of torsion was confirmed. We attributed this situation to the fact that USG is a subjective method.

2. The break down of the groups seems arbitrary. Group 2 contains both patients that had attempted detorsion followed by orchiopexy and those that proceed straight to orchiopexy without attempted detorsion. Group 3 appears to consist exclusively of patients where manual detorsion was not attempted? if this is so, why include them in this study on detorsion? I would propose limiting this study only to those patients where manual detorsion was attempted, and breaking the patients down those where the maneuver was successful vs those where it was not.

Response: We thank the Reviewer for these valuable comments. This was a retrospective study but we included patients who presented with testicular pain in the same period and were diagnosed with testicular torsion. Manual detorsion could not be attempted on all patients as there were different doctors on duty making the intervention. As stated in the study, manual detorsion was applied by 3 doctors in our clinic. The main reason for including the patients who underwent orchiectomy (Group III) in the study was to emphasise the importance in the study of the time period between patients applied with emergency manual detorsion and this group at the other extreme where orchiectomy was applied.

3. What was the timing of the post-manual detorsion doppler ultrasound? this needs to be explicit.

Response: The patients were evaluated with Doppler USG immediately after manual detorsion. In accordance with the Reviewer’s recommendation, this has been added to the text (material and Methods section, paragraph 3, Line 7-8).
4. Without a clear answer to the above questions, my fear is that this type of study may lead to abandoning the gold standard of surgical exploration by practitioners who are not studying this question on protocol.

Response: Surgical exploration and surgical correction remain the gold standard in the treatment of testicular detorsion. However, according to our study, elective testicular fixation can be applied safely in treatment following successful manual detorsion.

Ariella A. Friedman (Reviewer 2): In this paper, the authors aim to determine whether MD can serve as an adequate solitary treatment of testicular torsion in the emergency setting, with surgical fixation reserved for the elective setting. The authors have a good sample size, and they do a good job defining their criteria for success of MD. I believe this paper may be acceptable for publication if the following information was available for analysis or had revised discussion:

1) The authors have discussed minimally why MD with delayed orchiopexy would be an improvement on the standard of care of immediate orchiopexy (converting an emergency to an elective procedure, decreasing ischemia time). If this article is to be published, they should expand upon this discussion.

Response: We thank the Reviewer for the valuable comments. In the current EAU 2017 paediatric guidelines in the acute scrotum section, it is recommended that testicular orchiopexy is not applied electively after manual detorsion. (Bilateral orchiopexy is still required after successful detorsion. This should not be done as an elective procedure, but rather immediately following detorsion). This recommendation was made based on a study in literature by Sessions et al, in which it was stated that residual torsion was determined during orchiopexy in 17/53 (38%) patients who had been applied with manual detorsion and it was concluded that orchiopexy should not be delayed. No studies of high level evidence could be found on this subject in literature. Whether orchiopexy should be applied electively or not following manual detorsion does not come under the heading of a recommendation. In the current study, in 20 patients where successful manual detorsion was applied, the blood flow was seen to have been corrected on Doppler USG and following orchiopexy under elective conditions, no testicular atrophy or pathological state developed. In contrast to the study by Sessions et al, the findings of our study demonstrated that orchiopexy can be applied under elective conditions following manual detorsion. In accordance with the Reviewer’s recommendation, this has been further
discussed in the Discussion section (Discussion section; paragraph:3, line:14-19; ; paragraph:4, line:5-7)

Further, the authors have not discussed any limitations to this method. For example:

a. How much time was lost in the 24% of patients who underwent MD and repeat sonogram, only to ultimately need immediate orchiopexy anyway? Did these patients experience atrophy?

Response: Manual detorsion was not successful in 6 (24%) patients. The time from the onset of pain to presentation at hospital in these patients was mean 4 hours. Manual detorsion may not be successful in every patient. However, according to the results of our study, elective orchiopexy can be safely applied following successful manual detorsion. In the follow-up of these 6 patients who underwent emergency orchiopexy, no testicular atrophy or other pathology developed. This information has been added to the text (Results section, paragraph:2, line:8-9).

They did not assess how many patients had interim painful episodes prior to definitive surgery. Each episode poses additional ischemic risk.

Response: We agree with the Reviewer’s opinion. In the study, successful manual detorsion was accepted as the relief of pain and correction of physical examination findings and correction of blood flow on Doppler USG. No painful episodes were experienced by any patient in the period up to elective orchiopexy. This information has been added to the text (Results section, paragraph:2, line:7-8).

c. They did not address the two patients, who were once no longer in acute pain, decided not to undergo definitive surgery. These patients remain at risk for retorsion, and we don't know if the decision to operate at the time of pain would have changed this decision. Any idea how these patients fared?

Response: Two patients who underwent successful manual detorsion did not accept the orchiopexy operation. These patients could have been frightened of having an operation or they could have felt that it was not necessary once the pain was relieved. Although the patients were informed on the subject, they still rejected the operation. During follow-up no pain or pathological findings were determined in the physical examinations of these patients. This information has been added to the text (Results section, paragraph:2, line:3-5).

2) The objective outcomes of this study - preserved testicular size and function - are not adequately assessed for this paper to be published (the outcome is limited to "no parenchymal
disorder”). Objective information that would need to be included to confirm that this is an adequate treatment should include at least one or hopefully more of the following:

a. Biopsy showing no parenchymal disorder (ischemic damage is microscopic. A subjective determination of this fact is inadequate).

b. Sonographic or orchidometric assessment of preserved testicular size.

Response: We agree with the Reviewer’s opinions. In the follow-up of the patients in the study, evaluation was made with anamnesis, physical examination and sonographic evaluation. In the polyclinic follow-up of the patients with successful manual detorsion, no testicular atrophy or pathological findings were determined in any patient. Throughout the mean 3.5-year follow-up period, no complaints of severe pain were encountered in any patient. We agree with the Reviewer that parenchymal disorder could be determined objectively with biopsy. However, testis biopsy is not currently included during the orchiopexy or in the follow-up. Information on how the follow-up was applied for objective outcomes has been included in the text (Material and methods section, paragraph:4, line:1-3).

3) The authors did not discuss that MD is most often used as an adjunct to immediate fixation and not a substitution to it. The argument that it improves ischemia time is false, as one can always perform MD prior to immediate fixation, with no time lost.

Response: We thank the Reviewer for the valuable suggestions. However, as stated in the Results and in the Discussion section, the time to admittance for surgery was median 90 mins for emergency orchiopexy and even for patients with planned testicular fixation. Therefore, as MD was applied immediately after the diagnosis, the 90 mins was considered a time slice saving the testis with torsion from ischaemia. It can be preferable to apply orchiopexy immediately after MD, but according to our study, even if immediate orchiopexy is applied, the time of transporting the patient to the operating room and preoperative preparation means ‘a period with ischaemia’ and if immediate MD is applied at the time of diagnosis, then the ischaemic period is shortened. This subject has been added to the Discussion in accordance with the Reviewer’s request (Discussion section, paragraph:4, line:8-11).

4) The authors state that only confirmed TT cases were included for study. Did any patients undergo MD due to a false diagnosis of TT (who were later confirmed to not have TT)? If not, the authors should make a statement to that effect.
Response: This study was a retrospective study. The patients included were those diagnosed with testicular torsion only and with the diagnosis confirmed by Doppler USG and clinical symptoms. There were no patients with false diagnosis in the study. Patients with other acute scrotum reasons (eg, epididymitis) determined in the differential diagnosis were not included.

5) This paper would benefit from a native English speaker performing edits

Response: The article has been checked by a native English speaker.

If improvements to the English language within your manuscript have been requested, you should have your manuscript reviewed by someone who is fluent in English. If you would like professional help in revising this manuscript, you can use any reputable English language editing service. We can recommend our affiliates Nature Research Editing Service (http://bit.ly/NRES_BS) and American Journal Experts (http://bit.ly/AJE_BS) for help with English usage. Please note that use of an editing service is neither a requirement nor a guarantee of publication. Free assistance is available from our English language tutorial (https://www.springer.com/gb/authors-editors/authorandrevIEWERTUTORIALS/writinginenglish) and our Writing resources (http://www.biomedcentral.com/getpublished/writing-resources). These cover common mistakes that occur when writing in English.

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