Author’s response to reviews

Title: Cone-beam CT findings during prostate artery embolization for benign prostatic hyperplasia-induced lower urinary tract symptoms: a case report

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Author’s response to reviews:

Dear Editor,

Please find the enclosed edited manuscript in Word format (file name Main text_Revised.doc).

Title: Cone-beam CT findings during prostate artery embolization for benign prostatic hyperplasia-induced lower urinary tract symptoms: a case report

Author: Chia-Bang Chen; Chen-Te Chou; Yao-Li Chen

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Funding: No current funding sources for this study.

As per Reviewer and Editorial requests, we have made the following point-by-point changes to our original draft. We hope that the Reviewers and Editorial Staff will find this revised manuscript suitable for publication in BMC urology.

Editor’s comments:

In addition to addressing the comments from reviewers (below), please make the following editorial revisions:
1) Title page:

Please ensure email addresses for all authors are consistent between the submission system and the title page.

Answer: The email addresses for all authors are consistent between the submission system and the title page.

2) Manuscript text:

Please include a ‘Conclusions’ header before your concluding paragraph.

Answer: A ‘Conclusions’ header has been included before the concluding paragraph.

3) Declarations section:

* Ethics approval and consent to participate:

Please change the header ‘Ethics and Consent’ to ‘Ethics approval and consent to participate’.

Answer: The header ‘Ethics and Consent’ has been changed to ‘Ethics approval and consent to participate’.

4) * Competing interests:

Please include a statement declaring all financial and non-financial competing interests of all authors. If you do not have any competing interests, please state "The authors declare that they have no competing interests" in this section.

Answer: The statement "The authors declare that they have no competing interests" has been added to the manuscript in the relevant section.

5) * Funding:

Please include a statement as to how the study was funded, indicating the role of the funding body in: the design of the study; the collection, analysis, and interpretation of data; and the writing of the manuscript.
Answer: There was no funding for this study, which included the design of this study, collection of case, analysis & interpretation of the data, or writing of the manuscript.

6) * Authors’ contributions:

Please add a sentence confirming all authors have read and approve the final manuscript.

Answer: A sentence confirming that all authors have read and approved the final manuscript has been added.

Reviewers' comments:

Reviewer 1:

Overall: Good case of PAE with nice imaging including CBCT images. The case report would be improved if it was focused on how CBCT was helpful to the case and less about PAE in general. It needs more detail about the imaging and how the images were used,

1. Title: Recommend changing to "benign prostatic hyperplasia"

Answer: The title has been changed to “Cone-beam CT findings during prostate artery embolization for benign prostatic hyperplasia-induced lower urinary tract symptoms: a case report”.

2. Abstract:

Background: Pg 3 Line 10- There have been a couple prior reports on CBCT--see Bagla et al, JVIR 2013, Bagla, Sterling CVIR 2014, Wang et al Radiology 2016 (you cited this one). I would remove the statement that starts "To the best of our knowledge..." Replace with CBCT can be helpful for PAE to determine correct artery for embolization. Case presentation: pg 3 line 17 change to "imaging findings"

Answer: The sentence has been replaced with “CBCT can be helpful for PAE to determine the correct artery for embolization.” Also, “case presentation” has been changed to “imaging findings” as per your suggestion.
3. Background: P4 line 17 change to "prostatic artery embolization"; line 36 change "that was" to "that were".

Answer: In P4 line 17, “prostate artery embolization” has been changed to "prostatic artery embolization". In line 36, "that was" has been changed to "that were".

Case Presentation:

4. pg 4 line 46-would remove "without underlying disease"; line 58, Why were medical therapies not tried first?

Answer: When the patient presented to our OPD, the symptoms were so serious that acute urinary retention occurred and Foley catheter insertion was performed immediately. Medical treatment was not suggested because it usually takes days to weeks to show any treatment effects. In such an old patient with acute urinary retention, quick relief of the symptoms were indicated, and the patient did not want prolonged foley insertion. We have added the above to the manuscript.

5. pg 5--would recommend providing details of the contrast injection rates (manual or power injector) for each of the CBCTs performed. These are important details for this report which is about CBCT.

Answer: We have added details about how the contrast medium was injected. For angiography from the bilateral internal iliac arteries, 10 ml of pure contrast medium was injected by power injector at a flow rate of 2 ml/sec. For contrasted CBCT from the internal iliac arteries, 20 ml of a 67%:33% saline-to-contrast medium mixture was injected by power injector at a flow rate of 1 ml/sec and with an image delay of 6 seconds. For contrast CBCT from the prostatic arteries, 10 ml of diluted contrast medium at the same concentration was injected by power injector at a flow rate of 0.5 ml/sec and with an image delay of 6 seconds.

6. line 41-43 change "near total occlusion" to "near stasis" and why did you choose near total occlusion instead of total occlusion? Did you dilute the particles prior to injecting?

Answer: We have changed “near total occlusion” to “near stasis” in the revised manuscript. In our previous experience of interventional radiology, total occlusion might lead to high-grade tissue necrosis, and then abscess formation, which would require drainage. We tried to achieve the best treatment effect and also avoid possible complications. During embolization, we diluted the particles with 4 ml contrast medium, as per the instructions provided by the manufacturer.
7. pg 6 line 2 change "besides" to "in addition"
Answer: In P6 line 2, "besides" has been changed to "in addition".

8. line 12 Did you consider other techniques to avoid injuring the rectum, such as using larger particles? or advancing the catheter distal to these branches?
Answer: In previous reports, embolization of the prostatic artery could be achieved using 250 um-sized particles without complication. Although the right aspect of rectal branches were embolized together with the RPA, we thought it would not result in serious complication. Using larger particles were relatively safer in this situation compared with small particles, but the treatment effect might be degraded.

9. line 31--the more common self-limiting side effect for non-target embolization to the rectum is bleeding--mucus-containing stools sounds more like infection. Is this a possibility?
Answer: Yes, the mucus-containing stool may have resulted from low-grade infection or inflammation of the rectum. However, since the symptom was mild and no fever or chills were ever reported, we just kept this side effect under observation and did not apply any medical treatment.

10. line 34--what was the time interval after the procedure that the IPSS was remeasured?
Answer: The interval to re-measure the IPSS after the procedure was 3 weeks. We have added this to the manuscript.

11. Discussion:
9. Pg 6 line 58--need a reference for the statement about prostatectomy; pg 7 line 3--need references. I would suggest that you don't necessarily need the first two paragraphs of the discussion. I would cut straight to the imaging aspect of it.
Answer: The first two paragraphs of the discussion have been removed.
12. pg 8 line 1--Could you be more specific about how using the CBCT and the contrasted foley balloon helped identify the prostatic arteries? This should be the focus of the discussion.

Answer: The CBCT was really helpful for PAE. It spared the patient from having to undergo CTA before the procedure. It provided a detailed image of the vascular anatomy and helped radiologists make treatment plans. Most importantly, we could compare the CBCT before and after embolization of the prostatic arteries. If there were still areas of enhancement in the prostate gland in the follow-up contrast CBCT, it indicated that some supplying vessels had not been embolized and radiologists had to carefully find the missing vessels and embolize them in order to achieve a better treatment response. The contrasted Foley balloon catheter could be used as a landmark of the urinary bladder, and also the prostate, which was radiolucent under fluoroscopy. Although CBCT could provide a detailed image of the vascular anatomy, the arterial branches of the internal iliac artery run in a similar direction, and the radiologist therefore might get lost while catheterizing the prostatic arteries under fluoroscopy. With the contrasted Foley catheter, we could identify the prostatic arteries under fluoroscopy more easily. The arterial branches running above or around the Foley catheter would be the arteries supplying the urinary bladder, and those running under the Foley catheter with a course to the midline would be the prostatic artery. After successfully catheterizing the prostatic artery, contrast CBCT could be used for confirmation.

13. Figures:

1- In this image it looks like the LPA is arising from the internal pudendal artery

Answer: Yes. The LPA branched early from the internal pudendal artery.

14. 2- I do not think images b or c are helpful. I would just keep A and D. In D, it looks again as if the LPA is arising from the internal pudendal artery.

Answer: We have removed images b and c.

15. There appears to be contrast in the bladder wall as well--is it possible there was non-target embolization to the bladder?

Answer: It was contrast medium excreted from the kidneys which then accumulated in the urinary bladder. We have added this to the manuscript.
Reviewer 2:

This manuscript consists of a case report highlighting the role of cone-beam CT in a case of prostatic artery embolization.

The authors justify the importance of their manuscript on the absence of prior reports on the use of cone-beam CT for prostatic artery embolization.

But a number of larger studies have reported and discussed that, as follows below.

1. The only novelty of this case report is its submission to a Urology journal, as prior studies have been published in Interventional Radiology journals.

Answer: Thanks for your comments. The studies that you mention are good references and some of the results do overlap with our findings. However, in our manuscript we emphasize two main points. The first is that CBCT can spare the patient from having to undergo CTA before the procedure, thus reducing the radiation dose and contrast medium usage. The other point is that CBCT can be used after embolization to show total occlusion of the prostatic arteries by disclosing retention of contrast medium within the prostate parenchyma and without further enhancement after contrast CBCT. These two points are not mentioned in the studies. We have refined our manuscript to give greater emphasis to these two points.


Wang MQ, Duan F, Yuan K, Zhang GD, Yan J, Wang Y.


2. Automatic three-dimensional detection of prostatic arteries using cone-beam CT during prostatic arterial embolization.

Chiaradia M, Radaelli A, Campeggi A, Bouanane M, De La Taille A, Kobeiter H.


Bagla S, Sterling KM.
4. Utility of cone-beam CT imaging in prostatic artery embolization.

Bagla S, Rholl KS, Sterling KM, van Breda A, Papadouris D, Cooper JM, van Breda A.


We thank you for your time and consideration.

Sincerely yours,

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