Reviewer’s report

Title: An Association of Spleen Volume and Aortic Diameter in Patients and in Mice with Abdominal Aortic Aneurysm

Version: 0 Date: 30 Jul 2017

Reviewer: Robert Doonan

Reviewer’s report:

I read this manuscript with great interest. The authors have identified an important avenue of investigation. Although I believe the topic to be of interest for the vascular surgery community, this manuscript suffers from methodological flaws, which will require extensive revision.

General comments:

1. I would recommend an outside party review this manuscript for spelling and grammatical errors.

2. The figures contain some incorrectly labelled information. Some of these are noted in specific comments below. I recommend reviewing this manuscript thoroughly for these errors.

Specific comments:

Methods

1. It is not clear how the authors chose their final 30 male cases to be included in the study. Please provide a detailed description of how the number of screened patients went from 432 to the 30 included in the study. This can be in methods or results. However, the description in the results section currently is incomplete. Were there eventually more than 30 patients who did not meet exclusion criteria and 30 were selected at random? This is not clear.

Results

1. Animal experiments - the authors state that 'the number and size of follicles in the medullary region were increased…' Was this determined simply by gross observation or was there a quantification method to determine this? I suggest quantifying these analyses and showing this data.

2. Clinical cohort - the presentation of demographic and clinical data is confusing. If you are presenting data of 108 patients aged 50-80, this data should be in a table.
3. Table 1 - this table is sparse. Typically a Table 1 contains significant information with respect to the patient characteristics. The authors should include CV risk factors, smoking history, medications etc… For example, perhaps the groups differ with respect to smoking history, anti-hypertensive treatments, statin treatments etc… These may not only affect AAA size, but perhaps spleen volume? In addition, this data should be shown for the large and small AAA sizes since this is a key group differentiation in your analyses.

4. It appears as though all the analyses in this manuscript are unadjusted. The clinical characteristics suggested above to be included in Table 1 should be entered into the author's models to determine if there is a significant association between these covariates and pertinent variables (spleen size, AAA size).

5. It is unclear to me the clinical significance of a correlation of 0.36. Please comment.

6. Figure 1c - typo 'volumn'

7. Figure 1 d - the text states that this figure shows spleen to body weight ratio. It appears that the figure actually shows absolute weight of spleen and not a ratio.

8. Figure 1 e and f - I see no arrows on the figure as is described in the figure legends.

Discussion

1. 'we hypothesized that in patients… cause hypertrophy of the spleen'. I do not believe you can make the link between inflammation, inflammatory cells and hypertrophy of the spleen in your data set, at least not in humans. This statement should be clarified please.

2. Conclusion - first line. Your study does not demonstrate an association of spleen morphological changes in humans and AAA size, only spleen size (not morphology per se). Morphology typically refers to many features beyond size including heterogeneity, homogeneity, tissue types etc… Please fix this here and throughout the manuscript.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?

If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English

Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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