Reviewer’s report

Title: Reducing the Failure Rate of Hip Resurfacing in Dysplasia Patients: A Retrospective Analysis of 363 Cases

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Reviewer: Olufemi Rolland Ayeni

Reviewer's report:

Interesting review of a single surgeon's experience treating dysplasia patients with hip resurfacing.

- Overall, this study attempts to cover too many variables in one paper. It becomes difficult for the reader to really draw any conclusions. Perhaps you could consider writing up each change you implemented as a separate paper or under different sections helping to understand the influence of the confounders.

- You should mention that your techniques for improving outcomes with resurfacing in dysplasia are limited to the severity of dysplasia you have in your cohort (73-78% of grade I). You had no Grade III or IV, so you should make it clear to the reader that these results are only for mild dysplasia.

Abstract

- Clear and concise. Goal of the study and study design are clear.

- Would consider adding a sentence discussing why resurfacing is a concern in dysplasia patients (increased early failure, difficult dealing with issues of poor bone stock, version challenges, etc).
Introduction
- First paragraph, you briefly mention the higher failure rates with resurfacing in dysplasia. You could expand on this- why is there a higher failure rate? Is there a different reason for higher failure rates with Crowe 1 & 2 vs 3 & 4?

- You discuss this later, but in the final paragraph you discuss how you implemented four different interventions and their combined impact on resurfacing outcomes. This becomes difficult for the reader to interpret as there are a large number of confounders combined here. Can you report separately or rate importance of each change.

Materials and Methods
- Again, the authors discuss this later but results need to interpreted carefully here as you discuss 121 cases between Jan 2001 and July 2008 vs 242 cases between August 2008 and July 2013. Later, you discuss strategies that had been learned and implemented to improve outcomes. Therefore, the cases between 2001 and 2008 would have invariably had a worse outcome. Very difficult to analyze results here and clarification would improve the paper.

The authors characterize and classify dysplasia in four grades but don't discuss acetabular (cartilage and or version) changes much, other than to say you characterize socket anteversion as an oval acetabulum. With worsening dysplasia, the acetabulum may be in increased retroversion and this could pose a problem with hip resurfacing. You may be able to change the version of the cup with implantation, but you are limited on the femoral side. This may lead to impingement. You could mention these issues as challenges in performing resurfacing with worsening dysplasia.

- Good description of your surgical technique. Can you discuss your intraoperative checks for stability after implantation? Any issues of impingement with your cases?

- Use of intraoperative xray is useful for difficult cases, well written paragraph.
- Any issues of notching in any patients? Any femoral components implanted in varus? Perhaps you could mention this.

Results

- You have this in a table later, but you should mention in the body that your patients have predominantly mild dysplasia. Certainly, performing these procedures in grad III or IV would have different results.

- Can you discuss why you had dislocations. Was it their cup position?

- Can you elaborate on your revisions. You had a femoral neck fracture 4 days postop. Was there an issue with notching?

Discussion

- Although you had a fair number of patients in your study, you may be underpowered to discuss number of complications, failures, etc with this cohort. Perhaps you could discuss a future power analysis.

More commentary on learning curve would also help.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

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

No

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

Yes

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