

Constrained Liner Revision Is Less Effective with Each Subsequent Constrained Liner Revision at Preventing Instability in Revision Total Hip Arthroplasty

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Introduction: Constrained liners have been used to treat recurring THA dislocations, but there is concern regarding its effectiveness. The aim of this study was to evaluate the rate and survivorship free of revision for dislocation because of constrained liner failure in patients who were revised to their first, second, or third constrained liner.

Methods: From 1989 to 2016, using our institution's total joint registry, we identified 658 patients who were revised to their first constrained liner to prevent instability. During the same time period, there were 57 who were revised to a second constrained liner for dislocation because of one prior constrained liner failure, and 17 who were revised to a third constrained liner for dislocation because of two prior constrained liner failures. The mean follow-up was 5 years.

Results: In patients receiving their first, second, and third constrained liners, the survivorship free of revision for dislocation at 5 years was 90%, 54%, and 38%, respectively. Patients with a second constrained liner were more likely to have a revision for dislocation (Odds-Ratio=6.5; $p=0.0001$) compared to those receiving their first constrained liner. Patients with a third constrained liner had a trend towards being more likely to have a revision for dislocation (Odds-Ratio=2; $p=0.09$) compared to those receiving their second constrained liner.

Conclusions: After revision to a second constrained liner, 1/2 will undergo revision at 5 years, and after revision to a third constrained liner, 3/5 will undergo revision for dislocation. Patients receiving their second constrained liner are 6.5-fold more likely to have a dislocation requiring revision because of constrained liner failure compared to those receiving their index constrained liner. When a THA becomes unstable after a constrained liner, surgeons should optimize all other implant factors, and exercise caution before revising to another constrained liner.