Arthritis is not a peri-operative risk factor for construct failure or need for revision in patients undergoing spinal fusion

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BACKGROUND
Understanding the peri-operative influences of patients’ past medical history during spinal surgery is essential for promoting good outcomes in all spinal fusion techniques. A paucity of literature exists regarding the effect of common degenerative disorders like arthritis on spinal fusion outcomes, particularly intra-operative complications, construct breakdown, and need for revision fusions.

MATERIALS AND METHODS
An IRB approved retrospective review of a prospectively maintained database was utilized to examine patients undergoing spine fusion surgery at any spinal segment. Patients with a past medical history of arthritis were identified and analyzed for the following peri-operative events: incidence of surgical site infection, intra-operative blood lose, complications, hardware failure, need for revision, and the duration to each of these events.

RESULTS
478 total patients met inclusion criteria. The arthritis cohort included 178 patients. Patients with arthritis experienced higher volumes of intra-operative blood loss, which trended towards significance (614.01cc vs 565.533cc, p=0.0513). This cohort also experienced failure and required revision sooner compared to the non-arthritis cohort, although this statistic was not significant (36.73 months vs 42.27 months, p=0.3816, and 23.15 months vs 32.11 months, p=0.1802, respectively). No statistically significant differences were demonstrated for incidence of surgical site infections, operative time, durotomies, incidence of failure or need for revision between cohorts (6 vs 11, p=0.8705, 3.88hrs vs 3.85hrs, p=0.377, 14 vs 37, p=0.1670, 26 vs 35, p=0.4149, and 39 vs 58, p=0.582477, respectively).

CONCLUSIONS
For our study, concomitant arthritis was not associated with increased incidence of intra-operative complications or increased need for fusion revision as proposed by our hypothesis. The presence of arthritis only yielded a trend towards increased intra-operative blood loss without clear clinical significance. These results may suggest that the presence of additional degenerative inflammatory disease does not intrinsically yield a greater incidence of peri-operative complications nor failure rate, thus arthritis may not represent a patient risk factor when predicting such outcomes. Further research is needed with regard to subgroup analyses relating severity and type of arthropathy with the aforementioned surgical outcomes.