

## Outcomes following single level posterior lumbar fusion in patients with systemic and discoid lupus

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**INTRODUCTION:** Posterior lumbar fusion is a common procedure, for which patients with systemic conditions may be considered. Autoimmune conditions, such as lupus are one such class of conditions and include systemic lupus erythematosus (SLE, a multisystem autoimmune disorder characterized by aberrant B and T cell response to self-antigens) and discoid lupus erythematosus (DLE, an autoimmune disorder characterized by isolated cutaneous involvement). Postoperative outcomes following single-level PLF in patients with SLE and DLE, and how these may differ are not well characterized.

**METHODS:** Adult patients with and without SLE who underwent single level PLF from 2010-April 2021 were queried from the PearlDiver Mariner 151 database. Patients aged < 18 years old, with a recent history of infection, neoplasm, or trauma, or not active in the database for 90 days following their procedure were excluded from the analysis. Patients without and with SLE were 10:1 matched on age, sex and ECI. The above was repeated for patients with DLE.

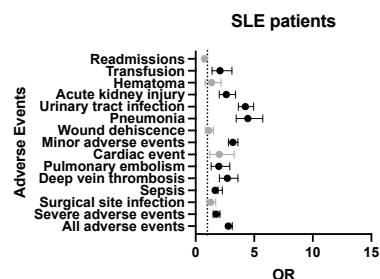
Univariable analyses and multivariable logistic regression, controlling for age, sex, ECI, were then performed on the matched populations to assess postoperative 90-day adverse events and ED visits. A Bonferroni correction was applied to multivariable analyses.

**RESULTS SECTION:** Overall, 191,765 patients who underwent PLF met inclusion criteria were identified, of which 2,068 (1.1%) had a diagnosis of SLE. On multivariable analysis of the matched populations, patients with SLE were at increased odds of 90-day (in decreasing ORs): pneumonia (OR 4.45), urinary tract infection (UTI) (OR 4.24), minor adverse events (OR 3.17), all adverse events (OR 2.78), deep vein thrombosis (OR 2.71), acute kidney injury (OR 2.62), transfusion (OR 2.08), pulmonary embolism (OR 1.98), sepsis (OR 1.66), surgical site infection (OR 1.29) ( $p < 0.0033$  for all, Figure 1).

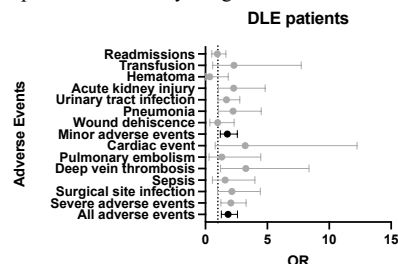
Of the 191,765 patients who underwent PLF between 2010 and 2021 Q1 and met inclusion criteria, 242 (0.1%) had a diagnosis of DLE. On multivariable analysis of the matched populations, patients with DLE were only at increased odds of 90-day (in decreasing ORs): all adverse events (OR 1.83) and minor adverse events (OR 1.77) ( $p < 0.0033$  for all, Figure 2).

**DISCUSSION:** The current study examined perioperative outcomes among a matched cohort of patients with and without SLE and DLE who underwent single-level PLF. While patients with SLE were at increased odds of a number of adverse events, patients with DLE were at an increased odds of only aggregated all and minor adverse events (and these were of lesser odds than found for SLE).

**SIGNIFICANCE/CLINICAL RELEVANCE:** This data has important implications for optimizing and counseling lupus patients who are considered for single-level PLF. Adverse events to be aware of for patients were SLE were defined, and relative reassurance was found for those with DLE.



**Figure 1.** Multivariable analysis of 90-day outcomes of adult patients with systemic lupus relative to those without who underwent isolated single level posterior lumbar fusion between 2015-2021 Q1, black points and bars represent statistically significant odds ratios (OR) and 95% CI, grey points and bars represent statistically insignificant OR and 95% CI, dotted line at OR=1



**Figure 2.** Multivariable analysis of 90-day outcomes of adult patients with discoid lupus relative to those without who underwent isolated single level posterior lumbar fusion between 2015-2021 Q1, black points and bars represent statistically significant odds ratios (OR) and 95% CI, grey points and bars represent statistically insignificant OR and 95% CI, dotted line at OR=1