

Preoperative dental caries do not increase perioperative complications, readmissions, or reoperations following single-level posterolateral lumbar fusion

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INTRODUCTION: Poor dental health has been considered a risk factor for adverse medical outcomes, such as infection. The effect of dental diagnoses in spine surgery remains largely uncharacterized. The present study aimed to characterize the association between dental caries and posterolateral lumbar fusion (PLF) outcomes in a retrospective cohort study.

METHODS: Adult patients undergoing single-level PLFs were identified from the 2010-2022 M170Ortho PearlDiver database, a large, multi-insurance, administrative database. Exclusion criteria included those under 18 years of age, less than 90 days of activity in the database postoperatively, and traumatic, neoplastic, or infectious diagnoses within 90 days prior to surgery. These patients were categorized into two mutually exclusive cohorts: those with a diagnosis code for preoperative dental caries within one year and those without the dental caries diagnosis code. The cohorts were matched 1:4 based on age, sex, and Elixhauser Comorbidity Index.

Differences in the incidence of 90-day adverse events (including surgical site infection, pneumonia, sepsis, urinary tract infection, wound complications, acute kidney injury, venous thromboembolic events, cardiac events, and transfusion) and readmission rates were compared via univariable analyses, while multivariable logistic regression compared the relative odds of such adverse outcomes, controlling for patient age, sex, and ECI. Five-year reoperation rates were assessed with log-rank tests.

RESULTS: A total of 244,378 patients undergoing single-level PLF were identified, of whom a history of dental caries was noted for 498 (0.2%). Patients with dental caries were more likely to be younger, more comorbid, and of differing insurance and geographic regions. After matching, 489 (20.1%) of the cohort had preoperative dental caries diagnoses, while 1,947 (79.9%) did not.

Univariable and multivariable analyses found no significant differences in the incidence and relative odds of 90-day adverse events between patients with and without caries diagnoses. A log-rank test found no differences in 5-year rates of subsequent lumbar operation.

DISCUSSION: Patients with a history of dental caries within one year of PLF were not found to have greater odds of 90-day adverse events, including infectious events. Furthermore, the lack of differences in 5-year rates of reoperations suggests that dental caries within the year prior to PLF does not impact the durability of PLFs. While it is intuitive that active dental issues should be addressed prior to elective PLF surgery, a recent history of dental caries in the year prior to such intervention did not appear to correlate with perioperative or longer-term outcomes.

SIGNIFICANCE/CLINICAL RELEVANCE: The present study is the first to use a large database to investigate the association between dental caries and outcomes following PLF. These findings demonstrate that dental caries diagnosis codes are rare for a patient to receive, and the lack of perioperative or long-term outcome differences suggests physicians should not be concerned about elevated surgical risk due to dental caries diagnosis codes before PLFs.