

Anterior Lumbar Interbody Fusion

Understanding Your Risks

This document outlines the risks and potential complication rates associated with **anterior lumbar interbody fusion (ALIF) with posterior pedicle screw fixation**. The following information is based on recent evidence from multicenter studies, systematic reviews, and national registry data.

Common Risks and Estimated Incidence:

- **Any complication:** 10–26% (includes both minor and major complications)[\[1\]\[2\]\[3\]](#)
- **Vascular injury:** 3% (major vessel injury, including iliac vein/artery)[\[1\]\[2\]\[3\]](#)
- **Visceral injury (bowel, ureter):** 0.3–0.6%[\[2\]\[3\]](#)
- **Neurological complications:** 4.1% (includes nerve root injury, cauda equina syndrome, or new/worsened deficit)[\[2\]](#)
- **Retrograde ejaculation (males):** 0.4–2.7% (higher at L5/S1, especially with anterior approach)[\[3\]](#)
- **Deep vein thrombosis (DVT)/pulmonary embolism (PE):** 0.65%[\[4\]](#)
- **Postoperative ileus:** 4.9%[\[4\]\[5\]](#)
- **Surgical site infection (superficial/deep):** 1.4–5.8%[\[2\]\[3\]](#)
- **Urinary tract infection:** 3.3%[\[2\]](#)
- **Pseudoarthrosis (nonunion):** 0.5% at 5 years with posterior fixation; higher without[\[1\]\[6\]](#)
- **Reoperation (within 5 years):** 0.5% for nonunion, 6.2% for adjacent segment disease[\[1\]](#)
- **Readmission (within 30–90 days):** 4–7%[\[5\]\[7\]](#)

Serious or Rare Risks:

- **Gastrointestinal complications (including bowel injury, ileus, or obstruction):** 4.9%[\[4\]](#)
- **Mortality:** 0.21%[\[4\]\[6\]](#)
- **Myocardial infarction:** 0.4%[\[2\]](#)

- **Stroke:** 0.2%[\[2\]](#)
- **Sepsis:** 1.1%[\[5\]](#)
- **Incisional hernia:** 0.6%[\[2\]](#)
- **Hematoma/seroma requiring evacuation:** 1.4%[\[2\]](#)

Risk Factors for Increased Complications:

- Advanced age, higher BMI, higher ASA status, diabetes, tobacco use, and osteoporosis are associated with higher complication rates and poorer outcomes.[\[2\]](#)[\[6\]](#)
- The risk of vascular injury is higher at the L4-L5 level and in revision cases.[\[3\]](#)
- The addition of posterior instrumentation reduces the risk of nonunion but may increase operative time and adjacent segment disease.[\[1\]](#)[\[8\]](#)

Patient Acknowledgment: By signing below, the patient acknowledges understanding of the above risks, their estimated incidence, and the potential for both common and rare complications associated with anterior lumbar interbody fusion with posterior pedicle screw fixation. All questions have been answered to the patient's satisfaction.

Signature: _____ **Date:** _____

Patient Name: _____ **DOB:** _____

References

1. [Primary Anterior Lumbar Interbody Fusion, With and Without Posterior Instrumentation: A 1,377-Patient Cohort From a Multicenter Spine Registry](#). Laiwalla AN, Chang RN, Harary M, et al. The Spine Journal : Official Journal of the North American Spine Society. 2024;24(3):496-505. doi:10.1016/j.spinee.2023.10.003.
2. [Anterior Lumbar Interbody Fusion: Single Institutional Review of Complications and Associated Variables](#). Mortazavi A, Muallem W, Dowlati E, et al. The Spine Journal : Official Journal of the North American Spine Society. 2022;22(3):454-462. doi:10.1016/j.spinee.2021.09.010.
3. [Retrospective Analysis of Medium-Term Outcomes Following Anterior Lumbar Interbody Fusion Surgery Performed in a Tertiary Spinal Surgical Centre](#). Srirangarajan T, Eseonu K, Fakouri B, et al. Annals of the Royal College of Surgeons of England. 2024;106(6):540-546. doi:10.1308/rcsann.2023.0082.

4. [ALIF vs. Posterior Fusion for Lumbar Degenerative Disease: Comparable Efficacy but Elevated Risk of Severe Complications-a Systematic Review and Meta-Analysis.](#) Onishi FJ, de Vasconcelos VT. European Spine Journal : Official Publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society. 2025;;10.1007/s00586-025-08914-w. doi:10.1007/s00586-025-08914-w.
5. [A Comparison of Anterior and Posterior Lumbar Interbody Fusions: Complications, Readmissions, Discharge Dispositions, and Costs.](#) Qureshi R, Puvanesarajah V, Jain A, et al. Spine. 2017;42(24):1865-1870. doi:10.1097/BRS.0000000000002248.
6. [Outcomes of Anterior vs. Posterior Approach to Single-Level Lumbar Spinal Fusion With Interbody Device: An Analysis of the Nationwide Inpatient Sample.](#) De Stefano F, Haddad H, Mayo T, Nouman M, Fiani B. Clinical Neurology and Neurosurgery. 2022;212:107061. doi:10.1016/j.clineuro.2021.107061.
7. [Approach-Based Comparative and Predictor Analysis of 30-Day Readmission, Reoperation, and Morbidity in Patients Undergoing Lumbar Interbody Fusion Using the ACS-NSQIP Dataset.](#) Katz AD, Mancini N, Karukonda T, et al. Spine. 2019;44(6):432-441. doi:10.1097/BRS.0000000000002850.
8. [Unilateral Versus Bilateral Pedicle Screw Fixation With Anterior Lumbar Interbody Fusion: A Comparison of Postoperative Outcomes.](#) Levy HA, Pumford A, Kelley B, et al. European Spine Journal : Official Publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society. 2024;33(9):3476-3483. doi:10.1007/s00586-024-08412-5.