

Symptomatic Adjacent Segment Pathology after Posterior Lumbar Interbody Fusion for Adult Low-Grade Isthmic Spondylolisthesis

Abstract

The incidence of symptomatic adjacent segment pathology (ASP) after fusion surgery for adult low-grade isthmic spondylolisthesis (IS) has been reported to be relatively low compared with other lumbar disease entities. However, there has been no study of symptomatic ASP incidence using posterior lumbar interbody fusion (PLIF) with pedicle screw instrumentation. We investigated the incidence of symptomatic ASP after PLIF with pedicle screw instrumentation for adult low-grade IS and identified significant risk factors for symptomatic ASP. We retrospectively studied records of 40 consecutive patients who underwent PLIF with pedicle screw instrumentation at the Department of Orthopaedic Surgery, Kansai Rosai Hospital, Amagasaki, Japan. The patients were followed for ≥ 4 years. Patients' medical records were retrospectively examined for evidence of symptomatic ASP. Age at time of surgery, sex, fusion level, whole lumbar lordosis, segmental lordosis, preexisting laminar inclination angle, and facet tropism at the cranial fusion segment were analyzed to identify risk factors for symptomatic ASP. Four patients (ASP group) developed symptomatic ASP at the cranial segment adjacent to the fusion. There were no significant differences in age, sex, fusion level, lumbar lordosis, segmental lordosis, or facet tropism at the cranial segment adjacent to the fusion between the ASP and the non-ASP groups. In contrast, laminar inclination angle at the cranial vertebra adjacent to the fusion was significantly higher in the ASP group than in the non-ASP group. Four patients (10%) developed symptomatic ASP after PLIF with transpedicular fixation for adult low-grade IS. Preexisting laminar horizontalization at the cranial vertebra adjacent to the fusion was a significant risk factor for symptomatic ASP.

成人低度峽部裂腰椎滑脫症狀進行後路椎體間融合後症狀性鄰近節段病變

相對其他腰椎疾病，成人低度峽部裂腰椎滑脫症狀 (IS) 進行後路椎體間融合後鄰近節段病變 (ASP) 的發病率是較低。但是，沒有研究是關於使用後路腰椎椎間融合 (PLIF) 與椎弓根釘的症狀性 ASP 的發病率。成人低度 IS 在進行使用椎弓根釘的 PLIF 後的我們調查有關症狀性 ASP 的發病率和鑑定對症狀性 ASP 顯著的風險因素。我們回顧性地分析連續 40 位在日本尼崎市 Kansai Rosai Hospital 的矯形外科部接受使用椎弓根釘的 PLIF 的患者的病歷。所有患者都跟進 ≥ 4 年。病人的病歷資料都進行回顧性研究，以找出症狀性 ASP 的證據。手術時的年齡，性別，融合節段，整個腰椎前凸，節段前凸，已存的椎板傾角和顛端融合節段的小關節方位進行分析，以確定症狀性 ASP 的風險因素。四名患者 (ASP 組) 發展出症狀性 ASP 在融合的顛端鄰近節段。在 ASP 和非 ASP 組之間，年齡，性別，融合層次，腰椎前凸，節段前凸，或顛端融合節段的小關節方位並無顯著差異。相反地，在 ASP 組中，與融合相鄰的顛端椎板傾角比非 ASP 組為顯著更高。四名患者 (10%) 在進行使用椎弓根釘的 PLIF 治療成人低度 IS 後發展出症狀性 ASP。已存在的與融合相鄰的顛端椎板水平狀是症狀性 ASP 顯著的風險因素。