

**Introduction**

Proximal Junctional Failure (PJF), a more severe form of Proximal Junctional Kyphosis (PJK) that includes evidence of mechanical failure, has been recognized as an important concern in adult deformity patients. Prospective evaluation of incidence and clinical impact of PJF have not been reported. We performed a prospective evaluation of PJF in patients undergoing adult deformity surgery (ADS).

**Methods**

172 ADS patients (10 centers) were followed prospectively with minimum 2-year follow-up. PJF was defined as increased proximal kyphosis of  $>10^{\circ}$  plus fracture of UIV or UIV+1 or instrumentation failure. Proximal Junctional Kyphosis (PJK) was defined as increased kyphosis of  $>10^{\circ}$  without mechanical failure. Patients were grouped as PJF, PJK, or neither. One- and two-year HRQoL scores, rate of revision surgery, and new neurological deficit were compared among the groups.

**Results**

There were 23 PJF patients, 36 PJK patients, and 113 with neither (NoPJF) over 2-year follow-up, for a PJF incidence of 13.3% and a PJK incidence of 20.5%. There was no worsening among PJF or PJK patients in 1-year, 2-year, or change from baseline scores for ODI, SF-36 PCS, or SRS-22 compared to NoPJF patients. There was a significant increase in rate of proximal extension of fusion among PJF versus PJK patients (14.6% vs. 1.9%;  $p=0.018$ ). No PJF or PFK patients experienced neurological motor deficits due to their junctional compromise in this cohort.

**Conclusions**

PJF represents a more substantial complication than PJK, as shown by increased rates of fusion extension among patients with PJF. However, negative impact on HRQoL measures were not found at 1- or 2-year follow-up between patients with PJF or PJK compared to NoPJF patients. There were no neurological deficits due to PJF in this cohort. The reported incidence of 13.3% represents the highest level of medical evidence to

**Learning Objectives**

By the conclusion of this session, participants should be able to: (1) Understand the difference between proximal junctional failure (PJF) and proximal junctional kyphosis (PJK); (2) Appreciate that PJF is a more substantial complication than PJK and is associated with significantly higher rates of revision surgery.

**References**

Hart RA, Pro SL, Gundle KR, Marshall LM. Lumbar stiffness as a collateral outcome of spinal arthrodesis: a preliminary clinical study. The spine journal : official journal of the North American Spine Society 2013;13:150-6.

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