Proximal junctional kyphosis and failure following spinal deformity surgery: a systematic review of the literature as a background to classification development

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Introduction

Proximal junctional kyphosis (PJK) and proximal junctional failure (PJF) are well described clinical pathologies. PJF is a frequent cause of revision surgery and often results in protracted patient recovery with impact on the cost effectiveness of surgical treatment for ASD. The development of an SRS PJK classification which correlates with clinical outcomes and guides treatment decisions and possible prevention strategies would be of significant benefit to patients and surgeons.

Methods

The 2014 ASD Committee performed a comprehensive English language systematic literature review of PJF and PJK incidence, risk factors, HRQOL impact, prevention strategy efficacy, outcomes of revision surgery and classification systems. The words “proximal junctional kyphosis” and “proximal junctional failure” were used as search terms in PubMed for all years up to 2013 to identify all articles that included at least one of these terms.

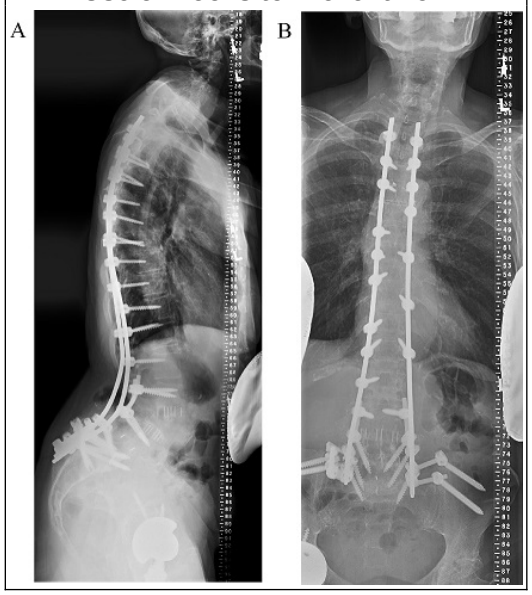
PJK without PJF

Results

54 articles were identified overall. 18 articles assessed for risk factors. 9 studies reviewed prevention strategies. There were no randomized prospective studies. There are three published studies that have attempt to classify PJK. The reported incidence of PJK ranged widely, from 5% to 46% in patients undergoing spinal instrumentation and fusion for ASD. It is reported that 66% of PJK occurs within 3 months postoperatively, and 80% within 18 months. Reported revision rates due to PJK range from 13% to 55%. Modifiable and non-modifiable risk factors for PJK have been characterized.

PJK with PJF

Use of Hooks to Prevent PJK



Conclusions

PJK/PJF affects many patients following long segment instrumentation following the correction of ASD. The epidemiology and risk factors for the disease are well defined. Preoperative risk factor scoring may help guide prevention strategy recommendations. The development and prospective validation of an SRS PJK Classification system is important considering the prevalence of the problem and its clinical and economic impact.

Learning Objectives

1. Recognize that PJK and PJF is a common complication.

2. Describe currently used prevention strategies of PJK and PJF.

3. Identify patients at risk for PJK and PJF

References

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