**Background:** PJK is a well-recognized postoperative complication in adults and adolescents spinal deformity after surgery; however, no reports specifically addressed the incidence, risk factors, and behavior of PJK in young children following spinal correction surgery.

**Methods:** A retrospective review of 61 consecutive young children with congenital scoliosis undergoing posterior instrumented spinal fusion (≥4 levels) from 2009 to 2011 in our institution was performed. They were younger than 10 years at surgery, and the minimum follow-up was 2 years. PJK was defined by a proximal junctional angle greater than 10° and at least 10° greater than the corresponding preoperative measurement. Radiographic measurements were performed preoperatively, immediate postoperatively and at the final follow-up, including proximal junctional angle (PJA), thoracic kyphosis, lumbar lordosis, kyphosis angles at T1-UIV and UIV-T12, as well as the matching of rod contour. Matched rod contour referred to the difference between the proximal instrumented region angle and the proximal rod curvature less than 5°. Comparison was carried out between patients with and without PJK.

**Results:** The average age at surgery was 5.4 years (2-10 years) and the average follow-up was 2.7 years (2-4 years). PJK developed in 11 of the 61 patients (incidence, 18%). PJK group had larger preoperative thoracic kyphosis (48.7° versus 36.3°), longer fusion levels (9.2 levels versus 6.8 levels) and larger amount of kyphosis correction (20.8° versus 11.7°). Additionally, proximal instrumentation failure and un-matching of rod contour were identified as risk factors significantly associated with the occurrence of PJK. In the PJK group, the average PJA increased 14.4° after 3 to 6 months postoperatively and then increased 2.5° until the final follow-up. Six patients had proximal instrumentation failure but none complained of pain or appearance problems. They received brace treatment and their PJK resolved.

**Conclusion:** This study demonstrated that 18% of young children were observed with PJK after correction surgery for congenital scoliosis. PJK mainly occurred within 6 months postoperatively, and its risk factors included preoperative hyperkyphosis and over correction of kyphosis (>40°), fusion levels ≥5 levels, proximal instrumentation failure, and un-matching of rod contour. Brace treatment served as a salvage option for PJK in young children.