Introduction: Patients with early onset scoliosis (EOS) treated with conventional distraction-based instrumentation such as growing rods (GR) or vertical expandable prosthetic titanium ribs (VEPTR) undergo multiple surgeries, placing them at risk for infection. Prior studies in this population report relatively high infection rates. Published efforts to reduce infection have focused on patient risk factors, nutrition, and antibiotic prophylaxis, but few have focused on the handling of soft tissue. This study was undertaken to see if attention to surgical incisions with offset layered closure significantly influenced the rate of peroperative wound infection.

Methods: A retrospective chart review of all EOS patients who underwent distraction-based surgical treatment by a single surgeon at a single institution from January 1980 to August 2014. Number and type of surgeries (index, lengthening, revision, removal) and resulting infections were collected. Additional information was recorded for growing rods, including position (subcutaneous or submuscular), metal type (stainless steel or titanium), and construct (single or dual rod). In January 2002, surgical technique was altered to include offset layered closure wherever possible on both primary and secondary wounds. Surgeries were therefore split into two groups: Group A consisted of procedures done before January 2002, and Group B of those done after. Statistical analysis with the exact binomial proportion test was used to determine statistically significant difference.

Results: A total of 137 EOS patients who underwent 1,265 distraction-based instrumentation-related surgeries were identified. In Group A, 4 out of 92 procedures (4.3%) became infected, in comparison to Group B, 3 out of 1161 incisions became infected, giving an infection rate of 0.26% (95% confidence interval: 0.05-0.75%). It was found that surgeries done after the institution of offset layered closure had a significantly lower rate of infection compared to those before (p<.001).

Conclusions: Given that higher surgical infection rates have been reported in the literature and early in this series, this study suggests that specific soft tissue-focused techniques may result in reduced overall wound infection rates in EOS surgery. The reported infection rate of 0.26% provides a more optimistic outlook for EOS patients undergoing multiple procedures.