

Bone Grafting & Closure

Irrigation is performed with a dilute povidone-iodine solution followed by sterile saline. Decortication is performed of all exposed bone in the fusion area, paying special attention to the facet joints near the LIV. Crushed cortical cancellous allograft and autograft from removed facet joints and spinous processes are placed along the decorticated posterior elements. The authors prefer to utilize the autograft near the LIV and UIV which are at highest risk for a nonunion. Vancomycin powder is combined with the bone graft for infection prophylaxis.

Closure is performed with running knotless, barbed, absorbable suture, in multiple layers, starting with #1 in muscle and then fascia. The subcutaneous layer is closed with 0 suture and the subcuticular layer with 3-0. A clear plastic adhesive closure is placed over the wound that allows visualization of the incision and reduces tension on the incision.

Comparison to Other Methods

Historically, anterior disc releases with posterior spinal fusion was the preferred method for kyphosis treatment.^{18,19} The basis of this treatment stemmed from a high incidence of loss of correction following a posterior-only treatment of Scheuermann's kyphosis²⁰ with instrumentation used in the past. However, with the use of pedicle-screw-based constructs and posterior osteotomies, more recent studies have demonstrated that anterior release is not necessary.^{21,22}

Summary

Historically, anterior disc releases with posterior spinal fusion were the preferred method for kyphosis treatment. In the era of pedicle screws, anterior release is not necessary. Successful treatment of Scheuermann's kyphosis may be obtained with liberal use of posterior osteotomies, using many serial reducers simultaneously to load-share over many screws, contouring the upper portion of the rod into a bit of extra kyphosis to prevent PJK, and including the stable sagittal vertebra in the lower instrumented vertebrae to prevent DJK.

Additional Links

<https://www.jposna.org/ojs/index.php/jposna/article/view/13>.

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