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EFFECT OF BONE GRAFT TYPE ON FUSION RATES FOLLOWING ENDOSCOPIC ANTERIOR SCOLIOSIS CORRECTION

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Study Aim: The objective of this study was to compare two-year postoperative fusion rates in a series of patients who underwent endoscopic anterior instrumentation for adolescent idiopathic thoracic scoliosis utilising allograft or autologous bone graft.

Methods: 19 patients who had endoscopic anterior-instrumented scoliosis correction using identical instrumentation between May 2000 to August 2005 were identified from a surgical database. Following discectomy, intervertebral spaces were packed with either autologous rib-heads (8 patients), iliac crest (1 patient), or femoral-head allograft (10 patients). Thoracic fusion quality and implant integrity were evaluated using CT two years following surgery. Fusion was assessed using a modified Sucato method. Each level was graded using a 4-point scale based upon fusion across the disc-space. Fusion was considered solid with a score ≥ 3 . Data was analysed with non-parametric tests.

Results: The mean fusion grade in the autologous bone graft group was 1.91 and 3.30 in the allograft group respectively ($p=0.001$). Nine patients had evidence of rod fracture. Implant failures occurred only in the group who received rib head or iliac crest graft. No rod fractures occurred in the femoral allograft group.

Conclusion: Significantly better rates of fusion occurred in endoscopic anterior instrumented scoliosis correction using femoral allograft compared to autologous rib-heads and iliac crest graft. This may be partly explained by the difficulty obtaining sufficient quantities of autologous graft. Lower fusion rates in the autologous graft group appeared to predispose to rod fracture although the clinical consequence of implant failure has not resulted in any patients requiring re-operation.

Ethics: local committee approval

Statement of Interest: none