SUMMARY

The purpose of this study was to assess risk factors for the development of major complications in 240 consecutive patients undergoing PSO or VCR for complex spinal deformities, and whether or not a major complication had an impact on the ultimate clinical outcome. We found that age >60yrs, =3 comorbidities, EBL >2 Liters, and fusion to sacrum were significant risk factors for the development of a major complication. The presence of a major complication did not affect the ultimate clinical outcomes at >2yrs.

INTRODUCTION

Three-column spinal osteotomies(pedicle subtraction osteotomy (PSO), vertebral column resection (VCR)) are common techniques to correct rigid spinal deformities. This study sought to: 1) characterize the risk factors for the development of major complications in PSO and VCR procedures, and 2) determine if the presence of a major complication affects ultimate clinical outcome.

METHOD

A retrospective review was performed on 240 consecutive PSOs (n=156) and VCRs (n=84) at a single institution between 1995-2008. Using established criteria (Glassman et al, Spine, 2007), we stratified complications as major or minor. Risk factors for complications and their effect on SRS

clinical outcomes at baseline and at >2yrs were assessed.

RESULTS

240 consecutive patients met inclusion criteria. Major medical and surgical complications occurred in 34% of PSOs (53/156) and 21% of VCRs (18/84). Overall, 20.4% (49/240) experienced major surgical complications (7 permanent), and 17.1% (41/240) experienced major medical complications (4 permanent). PSOs were older (52 vs 22yr, p<0.001), had fewer levels fused (9.9 vs 11.6, p=0.003), greater EBL (1,992 vs 1201cc, p<0.001), shorter operative times (475 vs 519 min,p=0.02), and less segmental kyphosis correction (35.1° vs 44.8°, p=0.05). Risk factors for major complications included age >60yrs (p=0.003), =3comorbidities (p=0.009), EBL>2L (p=0.01), and fusion to sacrum (p=0.05). Patients with and without major complications had equivalent baseline SRS subscores (2.63 vs 2.67, p=0.98), experienced significant improvement, and had equivalent final subscores at =2yrs follow-up (3.66 vs 3.59, p=0.43). While both improved significantly in SRS subscores, PSOs started off worse and improved more than VCRs (+0.9 vs +0.6, p<0.001) with no differences in final satisfaction (4.1 vs 4.5, p=0.11) (Table).

CONCLUSION

Major complications occurred in 34% of PSO and 21% of VCR procedures. Risk factors for developing a major complication included age >60yrs, =3comorbidities, EBL >2Liters, and fusion to sacrum. The occurrence of a major complication did not have a negative impact on the ultimate clinical outcome. While both improved significantly, PSOs started off worse and improved more than VCRs with no differences in final satisfaction.