INTRODUCTION: Surgical treatment of multiple level cervical degenerative disease with kyphosis is often treated with anterior decompression and posterior instrumented fusion. Appropriate levels for ending posterior cervical fusion have not been well documented. We have increasingly used posterior constructs crossing the C7-T1 junction in order to prevent junctional breakdown and improve fixation at the distal end of the arthrodesis. We sought to review the early peri-operative complications with this approach and compare them to reported complication rates for anterior/posterior spine fusion.

METHODS: A retrospective review of thirteen patients who underwent a multi-level arthrodesis spanning the cervico-thoracic junction between 1999 and 2003 with at least one year follow up was conducted. Eleven patients had multi-level degenerative disease with kyphosis. One each had an infection with an epidural abscess and neurofibromatosis with kyphosis and spinal stenosis. All thirteen patients underwent anterior cervical disectomy and corpectomy with simultaneous posterior instrumentation and fusion to T1, T2, or T3. Posterior instrumentation constructs included 3.0mm rods extended from cervical lateral mass screws to upper thoracic 3.5mm diameter pedicle screws, changing to 3.0mm cervical rods dominoed to 5.5mm rods attached to 5.0mm upper thoracic pedicle screws later in the series. All early complications were reviewed and recorded as major or minor depending on the severity and need for further intervention.

RESULTS: A total of 10 complications were recorded in seven of thirteen patients (54%). Six minor complications occurred including post-operative delirium (1), halo ring dislodgement (1), anterior graft migration not requiring revision (1), patient re-intubation (4), and posterior dural tear (1). Major complications included recurrent laryngeal nerve palsy requiring vocal cord stabilization (1), esophageal dysmotility requiring temporary percutaneous gastrostomy (2), iliac crest site infection (1) and post-operative myocardial inarction with recovery (1). There were no neurological injuries nor failures of instrumentation requiring revision.

CONCLUSIONS: Surgical treatment of multiple level cervical degenerative disease treated with anterior decompression and posterior instrumented fusion crossing the cervico-thoracic junction has significant complications. In our
series, most of these complications were minor, although several did require further intervention. Respiratory complications were frequently encountered and warranted extended post-operative intubation and intensive care unit observation. It appears that patients with combined anterior-posterior cervico-thoracic fusions have manageable but significant peri-operative complications, comparable to those observed in anterior-posterior spinal surgery of the thoraco-lumbar spine in adults. The benefits of extending fusions past the cervico-thoracic junction requires longer term comparisons to other surgical approaches to assess its value in treating multi-level cervical stenosis with kyphosis.

If noted, the author indicates something of value received. The codes are identified as: a- research or institutional support; b- miscellaneous funding; c- royalties; d- stock options; e- consultant or employee; n- no conflicts disclosed, and * disclosure not available at the time of printing. For full information, refer to inside of back cover.