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EXPERT'S COMMENT

# Expert's comment concerning Grand Rounds case entitled "Rheumatoid arthritis-associated spinal neuroarthropathy with double-level isthmic spondylolisthesis" by S. I. Kim et al. (Eur Spine J; 2017: doi:10.1007/s00586-017-5220-6)

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I congratulate the authors for presenting this interesting case of dual pathology. This patient with a background of rheumatoid arthritis initially presented with mild low back pain and was found to have L4 and L5 spondylolysis with minimal spondylolisthesis (slip) [1]. Over the following years the extent of the slip gradually increased, but her symptoms remained minimal until 8 years later when her back pain worsened and she also developed radicular pain. Imaging at this stage showed marked progression of the slip at both levels with accompanying destructive change, and she also had signs of progression of her rheumatoid disease in her wrists and cervical spine.

She was treated successfully with posterior decompression (presumably at L4/5 and L5/S1), fixation from L3 to ilium, insertion of interbody cages at L4/5 and L5/S1, and posterolateral grafting (presumably at all instrumented levels).

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When followed up at 3 months she reported that her symptoms had been relieved. When followed up again at a year her symptomatic and radiological results are not reported. However, electrophysiological tests were done at this stage because of the suspicion that the very florid destructive changes noted preoperatively could have been a Charcot-type phenomenon due to peripheral neuropathy associated with her rheumatoid arthritis. The tests showed decreased nerve conduction velocity, which confirmed this suspicion.

In my view, the indication and timing for surgery in this case were appropriate in that the surgery was only done when her symptoms dictated the need for treatment. The report suggests that the author felt that she should have had the surgery earlier because of radiological worsening, and that the patient declined because her symptoms were mild and she was afraid of surgery. I think it would have been a mistake to have persuaded her against this common sense approach, as although the operation was probably a bit more difficult once the slip became severe, there was (and is) little certainty about long-term result of her treatment.

The details provided about her operation indicate that the author felt the fixation needed to extend one level beyond the affected levels of the spine both proximally and distally, i.e. from L3 to ilium (as shown on the imaging provided, although the text of the article states that the fixation was from L3 to S1). This may well have been an appropriate decision as the patient, who had been on steroids for her rheumatoid disease, was probably osteopenic or osteoporotic, but a better option might have been to use cement augmented screws and to have fixed only from L4 to S1.

It appears that only posterolateral grafting was performed and that no interbody bone or bone graft substitute was used to accompany the intervertebral cages. In my view, a shorter length of instrumentation with augmented screws and the

insertion of interbody autograft bone as well as the cages would have been a better plan, with the option of still extending the instrumentation proximally and distally depending on the feel of the screw–bone interface at the time of insertion.

The length of follow-up reported for this case is not adequate to know whether the long-term result is satisfactory. The patient may well run into problems with fixation failure if a solid fusion does not develop. If a fusion does develop and the fixation remains intact, then it is quite likely that she will develop proximal junctional failure due to her probable poor bone quality and compounded by her neuropathy. Surgery on neuropathic joint disease elsewhere (e.g. the foot) is known to be prone to failure.

The finding of a peripheral neuropathy in this patient is of interest as testing for this condition is not a normal part of preoperative assessment when planning spinal surgery even in patients with underlying conditions, which predispose to it (e.g. diabetes). My understanding is that the new immunosuppressive drugs, which have so markedly reduced joint destruction in rheumatoid arthritis, also reduce rheumatoid neuropathy [2]. Hence it would be of interest to know whether, following the postoperative diagnosis of rheumatoid peripheral neuropathy, this patient had been considered for treatment with these drugs.

## References

1. Kim SI, Kim YH, Lee JW, Kang WW, Ha KY (2017) Rheumatoid arthritis-associated spinal neuroarthropathy with double-level isthmic spondylolisthesis. Eur Spine J. doi:10.1007/s00586-017-5220-6
2. http://www.arthritis-research.com/content/17/1/237