Reviewer's comment concerning “Simultaneous translation on two rods is an effective method of correction of hypokyphosis in AIS: radiographic results of 27 hypokyphotic thoracic scoliosis with two years minimum follow-up” by J.-L. Clément et al. (doi:10.1007/s00586-011-1779-5)

John K. Webb

Received: 25 March 2011 / Published online: 13 April 2011
© Springer-Verlag 2011

This study reports the results of posterior spinal fusion to correct AIS with reduction using a translation technique. The particular focus of the paper is regarding the correction of the sagittal plane. The principle of the technique being the insertion of two rods in the sagittal plane; the rods having been contoured in an acceptable sagittal profile. The surgeon used stable anchorages mainly in the proximal and distal extremities of the construct and at the apex of the curve. The pedicle screws were made with a polyaxial threaded extension that allowed connection to the rods. Progressive tightening of the nuts on the extension progressively pulled back the vertebrae towards the rods.

The results of the study, in terms of kyphosis, showed a significant gain in hypokyphotic cases. Coronal correction was also satisfactory.

The authors describe a technique of translation of the vertebra to the rods. This technique, as the authors acknowledge, was initially proposed by Eduardo Luque in 1972 [1]. Initially described for polio, but was later used by many surgeons for the correction of AIS. The tightening of the sublaminar wires to the rods allowed translation of the vertebra to the rods in a similar way that described in this paper. Unfortunately, because the wires were sublaminar the vector forces were not in the correct direction to cause derotation of the vertebrae. Our own data showed, if anything, the rotation of the vertebra was increased as was the rib deformity. These findings were

also reported by McMaster [2]. The technique was further developed by Asher, but he experienced similar problems in correcting the vertebral rotation and the hypokyphosis. Using these techniques good coronal plane correction was obtained, but the creation of acceptable kyphosis was not so rewarding.

The concept of translation, which has a significant influence on the rib deformity, was the major reason for the development of the universal spinal system. Luque's concept was to create an oblong frame with the upper and the lower ends of the curve corresponding to the cranial and the caudal levels of the fusion and the wires attached to the laminae were tightened to the rods in order to correct the deformity. A similar concept was adopted in the use of the USS; instead of wires, pedicle hooks and screws were initially used. The importance of the extension sticks attached to the pedicle screws cannot be over emphasised. It allowed translation of the convex side of the curve to the midline and with the use of the complex reduction forceps (persuader) the screws were then lifted to the rods, and at the same time with manipulation of the sticks derotation of the vertebral bodies could be achieved. As in the author's paper distraction is not used.

Many papers including our own show that rib deformity is not completely corrected and with time it reasserts itself to some extent, despite no deterioration of the fused area.

The focus of the majority of papers is the detailed description of radiographic measurements and the effect of instrumentation on the sagittal and coronal plane. Unfortunately, radiographic measurements do not necessarily correlate to the cosmetic appearance of the patient and more importantly patient satisfaction.

Although there seems to be an obsession of correcting all parameters on radiographs, which often includes the use of pedicle screws in every pedicle in the curve, let us not

J. K. Webb (✉)
Spinal Unit, Queen's Medical Centre, Derby Road,
Nottingham NG7 2UH, UK
e-mail: Johnkwebbspine@aol.com

forget, it is the cosmetic appearance that is the reason for surgery and not the excellence of radiographs.

This paper describes another technique to achieve derotation and translation of the vertebral bodies. Their results of correction in the sagittal plane are commendable. A pity there are no surface measurements.

References

1. Luque ER (1982) The anatomic basis and development of segmental spinal instrumentation. *Spine* 7(3):256–259
2. Hullin MG, McMaster MJ, Draper ER, Duff ES (1991) The effect of Luque segmental sublaminar instrumentation on the rib hump in idiopathic scoliosis. *Spine* 16(4):402–408