

Halo-Pelvic Traction – An Optional Treatment For Severe Scoliosis

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Introduction:

The management of severe kyphoscoliosis (curve > 100 degrees) is a challenge for spine surgeons in view of the increase risk of neurological complications. As single stage surgery carries high risk of post-op paralysis, peri-operative traction is one of the ways that proven to be successful in reducing the peri-operative risks and improve the magnitude of curve correction. We would like to present a case of dystrophic kyphoscoliosis secondary to neurofibromatosis presented with partial neurology which was managed peri-operatively by using halo-pelvic traction.

Case Report:

TJX is a dystrophic kyphoscoliosis patient secondary to neurofibromatosis. He is under our follow up since 2014.

On 14/3/17, he developed Frankel C neurology, sensation was reduced from T5 downwards. Urgent kyphectomy was unable to be done as it carries high risk of post-op paralysis. Halo-gravity traction was applied, the traction improved his symptoms however he was not compliant to it. After discussion with him and his family members, they agreed for Halo-pelvic traction.

Repeated CT whole spine after distraction of 40mm anterior/posterior over duration of 1 month noted improvement in curve. His neurology improved and he can ambulate with his frame. Currently he is waiting for his corrective surgery in February 2018.

Discussion:

Halo-Pelvic traction (HPT) is an apparatus that provide distraction forces towards the spine. Comparing with Halo-gravity traction, there is no compliance issue to be address. In comparison with Halo-femoral traction, HPT allows patient to ambulate and there is no risk towards the femur.

Severe kyphoscoliosis is a challenge in management due to poor lung function, severity of deformity, risk of forming pseudoarthrosis and lastly, risk of having neurological complications.¹ Peri-operative or

staged traction can improve the outcome of surgery as reported by Watanabe *et al* and Garabekyan *et al*.^{1,2}

Conventional halo-pelvic traction as done by the pioneer group of Hong Kong surgeons in 1960s secured the pelvic ring by using two pins to purchase the whole length of the two halves of pelvis, this has resulted in the risk of intestinal injury, prolonged bed-rest and wrong pelvic pin placement.^{2,3} As compare to the conventional 2 pins placement, we modify it by putting 4 pins anterior and 4 pins posterior, this has reduced the risk of intestinal injury and aberrant pin placement.

Conclusion :

Peri-operative traction is an optional treatment for severe scoliosis patient presented with partial neurology. This will improve their neurology, reduce the patient's operative complication risk and improve their surgical outcome later.

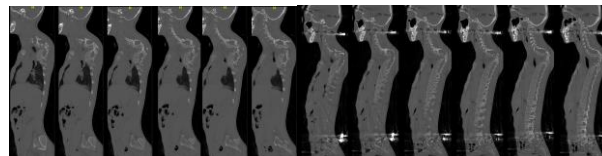


Fig 1: Comparison of sagittal view of pre- and post-traction CT



Fig 2: Progress of patient while on Halo-pelvic traction

References:

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2. Garabekyan T, Hosseinzadeh P, Iwinski HJ, Muchow RD, Talwalkar VR, Walker J, Milbrandt TA. (2014) *The results of preoperative halo-gravity traction in children with severe spinal deformity*. J Pediatr Orthop B. 23(1):1-5.
3. Hsu LC. (2014) *Halo-pelvic traction: a means of correcting severe spinal deformities*. Hong Kong Med J. 20(4):358-9.