SSI AND GALVESTONE METHOD IN THE TREATMENT OF NEUROMUSCULAR SCOLIOSIS

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In severe neuromuscular scoliosis, surgery is the definitive treatment. Most of these patients may be managed by posterior approach alone and SSI is the treatment of choice. Some of these patients will require fusion to the pelvis. If pelvic fusion is necessary we prefere to use Galveslone method which described by Allen and Ferguson.

Between 1986-1989 we treated five neuromuscular scoliosis using these methods. Four of the patients were the sequelae of polio and one of the patients had, Kugelber Willander disease. In one patient with neuromuscular scoliosis due to polio, we applied anterior release and Webb Morley anterior instrumentation system as the first stage and then SSI was applied as the second stage. Remaining four patients were treated by posterior approach alone.

The post-operative mean correction was calculated as 32° using the Cobb's method. In two patients who had severe pelvic tilt Galveslone method was applied, to correct the pelvic till also.

Four of our patients were not able to walk before the operation, three of them are now able to walk with the help of crutches. SSI and when required Galvestone modification are the treatment of choice of Neuromuscular Scoliosis in our experience.

***Key Words** : Pelvic Obliquity, SSI, Galvestone, Lumbar Scoliosis.*

The surgical treatment of Neuromuscular Scoliosis presents some different features when compared with Idiopathic Scoliosis. The curve of neuromuscular scoliosis is frequently at the lumbar region with marked increase of the Lumbar Lordosis and resulting pelvic tilling due to scoliosis and lumbar lordosis. The pelvic tilting that caused by lumbar lordosis and scoliosis should be corrected to provide easy walking of the patient in the majority of the cases. This can be accomplished by a lombosacral fusion in the patients with lower lumbar curves. The correction of pelvic tilting and obtaining a solid lumbosacral fusion present some important technical difficulties. Many methods have been described to deal with these problems in the literature (3-4). In this paper, I would like to overview the resuts of the cases that were treated by segmental spinal instrumentation and Galveslone mclhod of Lumbosacral fusion.

MATERIALS AND METHODS

Five patients with neuromuscular scoliosis have been treated at our clinic between 1986 and 1989. The cause of scoliosis was poliomyelitis in 4 cases and Kugclbcrg Willander type muscular distrophy in one case. Two patients have been treated by Galvestone mclhod posterior instrumentalion, three patients have been treated by Luquc type segmental spinal instrumentation only. One of these patients had a very rigid curve. That patient was treated by anterior discectomy first and Luque type SSI was performed as a second stage. No kind of external support or cast has been used in any patient at the post operative period.

Non ambulating three patients with poliomyelitis prior to operation have been able to walk with double long leg walking caliper after the operation. One patient who was able to walk wilh double long leg walking caliper before the operation became asymptomatic regarding his complaints due to lumbar instability and pelvic lilt. The palient who had Kugelberg Willander disease was enabled to sil after the operation. That patients was not able to sit before.

Mean follow up time was 28 months Mean correction of the scoliosis was 32 degrees. The pelvic tilting of the first patient that was treated by Galvestone Mclhod was corrected 70 percent. The correction rate of the second patient was 30 percent. The cranial ends of Ihc L rods of the first patient emerged under the skin and these ends were shortened by cutting one year later. Two sublaminar wire breekage were observed in the palicnt wilh Kupclbcrg Willander disease, but that palicnl has no complaint due to wire breakage.

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DISCUSSION

The correction of spinal dcformilics by using the every segment of vertebral colon was described by Alves of Portugal first (2) and became popular by Luque's introduction of the sublaminar wiring. The segmental pedincular screw fixation is the recent development of the segmental instrumentation, nowadays. The Luque type SSI that was used in these patients provided a segmental and rigid fixation resulting an easier fusion without any external postoperative support in the treatment of the scoliosis that was due to muscular imbalance in our experience. The Galvestone method that is originally a modification of Luque's technique, provided more secure fixation of the Lumbosacral region superior to other methods by using the sacral sublamincr wires (1). a good example of this method is a posterior lumbosacral fusion of L5-S1 spondylolisthesis cases by using sacral sublamincr wires. Although our experience with Galvestone method is fairly limited, if the iliac bone is atrophic in any patient (one of our cases was like that) the application of the L rods to the iliac bone requires meticulious caution and the fixation is not so secure as expected in such patients. Owerwiewing the cases with lower neuromuscular scoliosis that were treated by SSI instead of Galvestone technique I think that Galvestone method would provide more superior results.

Angular correction is directly related to the flexibility of the curve. That is why we had obtained 65 percent postoperative correction in our first patient that was treated by Galveslone technique. The end results of the evaluation of 5 cases that was treated by SSI are as follows. The flexible Lower Lumbar curves due to neuromuscular scoliosis should be treated by Galvestonc method. The rigid curves sholud be released by anterior discccctomy before and subsequently the Galvestone method is the method of choice as a second stage in the treatment of neuromuscular scoliosis.

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