

OUR EARLY RESULTS WITH TSRH INSTRUMENTATION ON THE TEATMENT OF ADOLESCENT IDIOPATHIC SCOLIOSIS

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In the 2. Clinic of Orthopaedics and Traumatology of Ankara Social Insurances Hospital from September 1991 to March 1992, 16 adolescent idiopathic scoliosis cases have been treated with TSRH system. In this study we are presenting our early results. At the end of the first three months mean Cobb angle correction of scoliosis was 31° and mean Aaro's angle correction was 7.5°. Mean vital capacity increase was 29 % and loss of correction was 3°. Although we have very limited experience with TSRH system we found our early results satisfactory.

MATERIAL AND METHOD

Sixteen patients were treated. Six of them were boys. The ages of the patients were between 11 years and 16 years. Mean age was 14.5 years.

The curves patterns of the patients according to King classification (1):

Type I	: 3 cases
Type II	: 6 cases
Type III	: 5 cases
Type IV	: 2 cases
Type V	: 0

Preoperative scoliosis angle (Cobb angle) was between 40 and 85°. Average 56°. In sagittal plane thoracic kyphosis was between -10 and 35° average 25° and lumbar lordosis was variable between 17° and 53° with average 40°. Apical vertebra rotation was determined by CT according to Aaro's method (2). It was variable between 22° and 60.5° with average 35.5 %. Preoperative vital capacity of every case was between 56.2 % and 69.6 % of normal limite with mean value of 60 %.

Surgical procedure: Five of the sixteen cases were operated in two stages.

1. Anterior approach with anterior release and fusion.
2. Posterior approach with TSRH instrumentation and posterior fusion.

The remaining 11 patients were operated only by posterior approach. We've used TSRH hooks, rods and crosslink system with posterior interventation. In 6 patients we've preferred the pediatric sizes of implants. During the preoperative planning period and surgical procedure we've respected to the principles primarily accepted by the CD authors 53, 4) except of claw con-

figuration. We applied pediculotransversal claw configuration on the upper part of the convex side of deformity, not on the same vertebra but on the two adjacent vertebrae. We performed derotation in a standart fashion as described by the CD authors. We performed posterior fusion according to King's principles. We didn't used external support except one case.

RESULTS:

In order to compare the results, we had standing x-rays at the and of first week and third month. We had also CT of apical vertebra and done vital capacity measurements for comparing to preoperative results.

Postoperative scoliosis angle (Cobb angle) was between 10 % and 47 % with an average of 25 %. At the end of third month same angle was between 10 and 49° with an average of 28 %. Immediate posoperative correction was 31 % and loss of correction at the end of third moth was 3 %.

On the sagittal plane postoperative thoracic kyphosis was between 18 % and 45 % with a mean value of 27 % and lumbar lordosis was between 20 % to 48 % with an average of 34 %.

Postoperative Aaro's angle was between 15 % and 50.5 % with an average of 28 %. Mean correction of apical rotation was 7.5 %.

Vital capacity was variable from 79 % to 92 % with an average of 89 % of normal limits. Mean increase was 29 %.

COMPLICATIONS:

1. One superficial wound infection appropriately treated with parenteral antibiotics.
2. In two patients we disturbed spinal balance.
3. One apical hook dislodgement because of inappropriate convex rod contouring.

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CONCLUSION:

Although we have very limited and short time experience with TSRH vertebral instrumentation system we conclude:

1. It's a very versatile and effective system on the treatment of idiopathic scoliosis.
2. It provides good 3-D correction of deformity during surgical procedure.
3. Usually we don't need an external support after surgery because of its stability and rigidity.

REFERENCES

1. King HA, Moe JH, Bradford DS and al. The selection of fusion levels in thoracic idiopathic scoliosis. *J. Bone Joint Surg*: 56A: 1302-1313, 1983.
2. Aaro S.: Vertebral rotation-estimation of vertebral rotation and spinal and rib cage deformity in scoliosis by computerized tomography. *Spine*, 6: 460-467, 1981.
3. Cotrel Y, Dubousset J: New segmental posterior instrumentation of the spine. *Orthop. Trans.* 9:118, 1985.
4. Dubousset J, Graf H, Miladi L, et al: Spinal and thoracic derotation with CD instrumentation. *Orthop. Trans.* 10:36, 1986.