

THE TREATMENT OF SPONDYLOLYSIS AND SPONDYLOLISTHESIS BY ALICI SPINAL SYSTEM

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Spondylolisthesis has been known since the 18th century. At the beginning, various treatment methods have been applied. Some used posterior and posterolateral fusion (1, 2, 10); later interbody fusion has been tried. (1, 3)

Harrington was the first one in 1969 who applied reduction and stabilization through internal fixation (8). Subsequent works by others consisted mainly of the adaptation of Harrington's instrumentation to their own methods. Later on Dwyer pioneered stabilization through transpedicular screw. This method has further been developed by Cotrell and Dick (7).

Biomechanical studies showed that in lumbar vertebrae the trans pedicular screw system is the best one for rigid fixation and immobilization (6, 7, 11).

MATERIAL and METHOD

At the Department of Orthopaedic and Traumatological Surgery of the İzmir Buca Hospital of Social Security Cooperation, reduction and fusion through Alici Spinal instruments have been applied to 16 patients with lumbar instability, between December 1990 and January 1992. 10 of the patients had Spondylolisthesis; 3 of them had also Spondylolysis in different segments accompanying Spondylolisthesis; moreover, 1 of the patients had also spina bifida. 6 patients had only spondylolisthesis. 9 of the patients were female, 7 were male (table 1). Their ages varied from 30 to 61 (averaging 45).

According to the Meyerding classification 4 patients were grade I, 4 others 11, 2 patients grade III (Table 3).

With regard to the slip occurring segment, 1 belonged to L3-4, 4 to L4-5 and 5 to L5-S1 (Table 4). Furthermore the pathology included disc herniation at one higher level in the 1 patient of L3-4 and 3 patients of L4-5 slips, spina bifida in 1 case, spondylolysis in 3 cases (Table 4).

Table 1:

	Patient	Female	Male
Spondylolisthesis	7	3	4
Spondylolisthesis + spondylolysis	3	2	1
Spondylolisthesis	6	4	2

Table 2: With regard the etiologic distribution, 10 were isthmia, 5 degenerative and 1 traumatic (Table 2)

Etiology	Patient
Isthmia	10
Degenerative	5
Traumatic	1

Table 3:

Meyerding Grade	Patients
I	4(% 40)
II	4(% 40)
III	2(% 20)

Table 4:

Slip level	Patients
L3-4	1
L4-5	4
L5-S1	5

5 patients had sensitivity disturbances in form of hypoesthesia before the operation.

The indication for surgical treatment of our patients were;

No response to medical treatment

Progressive slipping

Neurological deficits

More than 50 % slipping.

Table 5: Duration of conservative treatment

Time (month)	Patients
0-3	4
3-6	4
6-12	3
more than	5

Surgical Technics:

The intervantion begin with posterior straight longitudinal incision to patients prepared in prone position. Electrocother in used from subcutaneus tissiues. Paravertebral muscless has been stripped until transversal out crobs clearly appear.

The location for pedicular screws are determined and the screws were put with an angle of 10 to 15 grade to the medial. In most cases screwing is applied to one upper and one lower segment.

After setting the rods and telescopical screws, the stablitation is achieved by transversal distracters.

Decortication and posterior fusion throgh corticospongios grafts taken from posterior iliac crest are applied to the patients.

Due to the accompaning pathological causes in one upper or lower segments hooks and rods are applied to one upper or one lower vertebrae.

It has been planned to apply screwing at the beginning to all patients; however the flouroscoy instrument could not be used during the operation so that a wake-up test applied to 10 patients during to operations. No X-Ray or image intensifier are used during the operations.

Post operative care:

- The patients have been sitted on the 3rd day,
- Stand-up between 7 to 14th days,
- The sutures are taken on 14th day,
- Asked for control every mounth during the first 3 mounths and every 2 mounthslater on,
- Corset is used by all patients for a period of 3 to 6 mounth (averaging 4 mounths),
- I.V. or I.M. antibiotherapy began one day before operation. The use of antibiotics continued in parenteral form until the fifth day after the operation and in peroral form later on. Third generations cephalosporin antibiotics are preferd for parenteral use.
- Blood transfusion of 3 to 5 (avarage 4) units is carried out during the operation,
- The dration of the operations was 3 to 5 (avarage 3,5) hours.

CONCLUSIONS

Pains disappeared after the operation in 10 patients. Light pain while sitting is encountered in 3 patient, 3 paients got pains after walking 1 km.

12 patients returned to their previous jobs, on patients, who was a porter. can not lift heavy load. 4 patients are still under polyclinics control.

During post operative controls; Anterior flexion is measured as 40 degrees in 1 patients, 50 degree by 2, 90 degrees by 7 patient lateral flexion is measured as 10 degrees by 3 patients, 20 degrees by 2, 30 degrees by 5 patients.

Hypoesthesia encountered at 5 patients prior to the operation, disappeared in 3 cases, gradually demenishing in 2 cases.

After the operation the laseque test yielded 50 degree at one patient, was negative at all remaining cases.

At one patient superficial infection has been encountered; he has been cured by suitable antibiotics according antibiogram of the culture.

DISCUSSION

In the contest of biomechanical works no significant differences are found between the different transpedicular screw systhems (6).

Spondylolisthesis is a kyphotic deformity and the reduction theoritically reduces the load over the posterior bone grafts.

Irwin found in post operative controls of grade III and IV patient to which only fusion has been applied, increased lordozis, increased pelvic tilt in 4 patients, sacral step of in 4 cases and scoliosis in 2 cases (10).

Bradford indicated 40 % progression in patients with only fusion, in the series of patients, there was a 55 % slip before the operation (4).

Wiltze obtained very good results in 17 and good result in 7 of the 24 patients having slips move the 50 % (12).

Hensingen reported very good and good and good results in surgical treatment of 19 cases out of 20 (9).

The reduction in our patients according to the Meyering classification is determined as:

Number of patient	Preoperative grade	Postoperative grade
1	III	I
1	III	II
2	II	0
2	II	I
3	I	0
1	I	I

The result obtained our cases are compatible with those of various other (2, 12).

In this method both hooks and screws can be used

at the same time. The system is cost effective and be provided easily enabling, easily application.

It all lows laminectomy and spinal canal control during the operation.

With regard to these data, the Alici Spinal System yields good results in the treatment of low region lumbar instabilities.

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