

# THE USE OF TRANSPEDICULAR INTERNAL FIXATOR IN THE UNSTABLE THORACOLUMBAR VERTEBRAL FRACTURES

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*Transpedicular internal fixation is used in six unstable thoracolumbar vertebral fractures in our department between May 1989 and December 1989. Operation was performed under image intensifier control. Early mobilization was begun postoperatively.*

*We think that early results of this treatment seems satisfactory because accurate reduction of fracture is obtained with rigid fixation. Also another advantage is the fixation of a short segment of vertebral column.*

**Key Words :** *Fixateur Intern, Vertebral Fractures*

It is critically important to determine if a vertebral fracture is stable or not. Of an unstable fracture is overlooked, it may cause serious neurologic deficit, progressive spinal deformity, persistent back pain, bed-rest of long duration and usage of boring orihosis (1). On the other hand, if a stable fracture is misdiagnosed, it may lead to unnecessary surgical interventions.

Treatment of stable fractures without neurologic deficit is conservative (1,2,6). Main problem is in the treatment of unstable fractures.

Stability is defined according to neurologic deficit and structural damage of the vertebral column. The followings are considered unstable: According to Denis's three column system, cases with at least two fractures out of three columns, fracture-dislocations, flexion traumas, serious compression fractures (with more than 50% loss of vertebral height and kyphosis angle more than 20 degrees) (3,4).

Main goal of a surgical treatment of an unstable fracture is reduction of fracture, correction of deformity, stabilization of fracture, decompression of neural canal and early rehabilitation of the patient (1,2,5,7). For this reason, anterior and posterior interventions of various kinds are being used all over the world (1, 2, 6,7). In our department, usually double Harrington instrumentation and posterior fusion had been used. But this system, besides having advantages of being available in vertebral fractures, has some unsolved problems as well (5,7).

## MATERIALS AND METHOD

Transpedicular internal fixation was used in six patients in our department between May 1989 and December 1989 (5). The amount of damage at vertebrae and position of fragments of all patients were evaluated preoperatively by AP and Lateral x-rays and computerised tomography of vertebral column.

Under general anesthesia and image intensifier control, patients are given prone position at the operating table. We use midline incision over 5 spinous processes. Paraspinal muscles are dissected subperiosteally to the lip of the transverse processes. Taking facet joints and transverse processes as reference points, where Schanz screws would be applied is determined. Under image intensifier control, Totally 4 Schanz screws, being two at right and two at left of upper and lower vertebrae neighboring the fractured one, are applied towards vertebral bodies. Necessary reduction was provided. After debridement and grafting wound was closed by layers. Position of vertebral column and fixator are controlled by x-rays views.

Fractures of all our patients were due to traffic accidents. Four of them had partial neurologic deficit, two had no neurologic deficit. Besides vertebral fracture, one had multiple costal fracture and one had medial malleolar fracture. Physiotherapy was begun in the early postoperative period.

## RESULTS

There was not any deep or superficial infections. In the postoperative period there was neither progression in the neurologic findings of the patients nor iatrogenic neurologic complications. All of the patients were mobilized with an external brace support as early as possible when their general conditions were suitable.

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## DISCUSSION

We can list the advantages of the system as follows :

- 1 . Fixation is being done only to upper and lower vertebrae neighboring the fractured one. Fixation does not involve more than two mobile segments.
- 2 . It can be used in different fracture types.
- 3 . The system enables accurate reduction of the fracture.
- 4 . It can be used in patients whom a laminectomy had been performed before.
- 5 . Instruments used for internal fixation are few in number and not complicated.
- 6 . No additional external fixation is necessary for long time (5).

We think that it is a little early to reach a general conclusion for a system that we have used just only for six patients. Although our experience at this subject is limited, first results seem quite satisfactory for the beginning.

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