Clinical Outcomes of Surgical Treatment for Osteoporotic Vertebral Collapse in Patients with Parkinson’s Disease

Eihiro Murota, Itaru Oda, Masanori Fujiya

Spine Surgery, Hokkaido Orthopaedic Memorial Hospital, Sapporo, Japan
It is reported that the spinal reconstruction in patients with Parkinson’s disease is challenging.*

The purpose of this study was to evaluate clinical outcomes of surgical treatment for osteoporotic vertebral collapse in patients with Parkinson’s disease.

Clinical Materials

- Since 2004, surgical treatment in patients with Parkinson’s disease: 8 cases
- Age at surg: avg. 72yrs
- Follow-up: 35 mos
- Affected Level:
  - T11: 1, T12: 4, L1: 1, L2: 1, L3: 1, L5: 1
  - (two level collapse: 1 case)
- Clinical symptoms
  - Severe back pain and unable to walk: 8/8
  - Myelopathy: 5/8
  - Cauda equina impairment: 2/8 cases
Surgical Procedure

7 cases Vertebroplasty with Post. instrumentation

1 case with rigid kyphosis Combined Ant. and Post. reconstruction

2-above, 1-below at spinal cord level

1-above, 1-below at cord equina level
Results

- Implant failure or pull out: 0/8 cases (0%)
- Fusion Rate
  - Posterolateral: 8/8 cases (100%)
- ADL
  - Improvement of backache and neurological symptoms: 8/8 cases
  - Ambulatory: 8/8 cases (100%)
Complications

- Peri-OP, general complications: 0/8 cases
- Deep infection: 0/8 cases
- Newly Developed Vertebral Fx.: 6/8 cases (75%)

3 cases: within reconstruction (a)

3 cases: out of reconstruction (b)
Newly Developed Vertebral Fractures

Onset of new Fx.

5 cases: Postop. 1 mos
1 case: Postop. 2 yrs

Conservative Treatment

5 cases Success!

1 case Failure → Vertebroplasty

L3
LOCAL KYPHOSIS (Degrees)

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<tr>
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<th>Preop</th>
<th>Postop</th>
<th>Follow-up</th>
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<tbody>
<tr>
<td>Local Kyphosis</td>
<td>27.6°</td>
<td>9.3°</td>
<td>11.3°</td>
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Loss of correction was 2.0 degrees
DISCUSSION

This study

- Implant failure: 0 case
- Loss of correction: 2.0 degrees
- Additional operation: 1 case
  (Vertebroplasty for adjacent level fracture)

*Incidence of reoperation was less compared to previous report.*

*L. Brett Babat, MD, Robert F. McLain, MD, et al. Spine 2004*
## Parkinson’s vs Non-Parkinson’s

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<thead>
<tr>
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<th>This study Parkinson’s</th>
<th>Our study Non-Parkinson’s</th>
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<tr>
<td><strong>Additional Fx.</strong></td>
<td>75%</td>
<td>&gt;</td>
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<tr>
<td><strong>Loss of correction</strong></td>
<td>2.0°</td>
<td>&gt;</td>
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<tr>
<td><strong>Neurologic recovery</strong></td>
<td>100%</td>
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* Non-Parkinson’s additional fx.: 6/41 cases (15%) at postop. 2 yrs.

CONCLUSIONS

- A total of 8 patients with Parkinson’s disease, who underwent spinal reconstruction for osteoporotic vertebral collapse, were reviewed.

- Backache and neurological symptoms were improved and maintained at the latest follow up in all patients.

- Instrumentation failure was not detected in any patient. However, six patients presented newly developed vertebral fracture. And five of them did within postoperative one month.

- The frequency of new fractures in patients with Parkinson’s disease was much greater than that in the patients without Parkinson’s disease.