Femoral Neck Fractures in Hemiplegic Patients

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Introduction
Hemiplegic patients often fracture femoral neck bones due to falling. An investigation was made as to when, where and how this occurred and the capacity for ambulation after treatment.

Materials
Between August 1977, and March 1990, we treated 369 cases of femoral neck fractures. Thirty-nine (39) of these cases were previously hemiplegia due to cerebral vascular attack (CVA).

Results
Most of the patients with hemiplegia were in their seventies. There were 22 cases of intracapsular fracture (Right : 13, Left : 9) and 17 cases of extracapsular fracture (Right : 7, Left : 10). Hemiplegia of the right side was noted in 20 patients and on the left side, in 19. There were fractures on the hemiplegic side in 33 cases and on the healthy side in 6 cases. For CVA giving rise to hemiplegia, there were 4 cerebral hemorrhages, 27 cerebral infarction, 4 cerebral thrombose and 4 unknown. The period from the occurrence of CVA to fracture was between 6 days and 22 years and most fractures happened 2 years from the occurrence of CVA. As for the sites of falling, 19 fractures occurred at the patient's own house, 14 fractures in the hospital (6 at our hospital), 4 fractures in old-age homes and 2 fractures at elderly health facilities. As for the time of the trauma, a 24 hour period was divided as follows: from 0 to 8 o'clock, from 8 to 12, from 12 to 18 and from 18 to 24. Patients living at home were injured in most cases in the third period, while those at the hospital, in the first period (a midnight work time called by nursing work). At the time of the accident, 9 cases were walking or working outside and of course were living at home. Next to this, there were 7 cases of going or coming back from the toilet room or while in the toilet, most of these cases were in the hospitals.

As fracture treatment, of 22 cases of intracapsular fracture, femoral head prosthesis was conducted in 16 cases, osteosynthesis in 4 cases and conservative therapy in 2 cases.

In cases in which osteosynthesis or conservative therapy was carried out, no pseudoarthrosis and
Table 1  Ability of ambulation

<table>
<thead>
<tr>
<th>Ability of ambulation</th>
<th>before fracture</th>
<th>after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>30</td>
<td>22</td>
</tr>
<tr>
<td>Group 2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Group 3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Group 4</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Group 5</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>death</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

Group 1; able to walk alone or independently with a cane,
Group 2; able to walk with a cane with some help or with someone watching
Group 3; able to walk with a walker,
Group 4; wheel chair required,
Group 5; bedridden

aseptic necrosis was noted. Of 17 extracapsular fractures, Ender nailing was conducted in 10 cases, multiple pinning in 2 cases and nail and plate in 2 cases. Pseudoarthrosis was observed in one case of Ender nailing. In three cases, no operation could be performed owing to deterioration of the patient's general condition. Two patients died. In one case, fracture healing was brought about by conservative therapy. Based on ability of ambulation, the patients were divided into five groups.

Group 1: able to walk alone or independently with a cane.
Group 2: able to walk with a cane with some help or with someone watching.
Group 3: able to walk with a walker.
Group 4: wheel chair required.
Group 5: bedridden.

Before fracture, there were 30 cases in group 1, one case in group 2, 2 cases in group 3 and 6 cases in group 4. After fracture treatment there were 22 cases in group 1, 3 cases in group 2, one case in group 3, 9 cases in group 4, 2 cases in group 5 and 2 cases died. Of the surviving, 9 cases could not walk before the fracture; there were 3 cases of intracapsular fracture and 6 of extracapsular fracture. The operation methods seemed to appear the same. Seven (7) cases (intra-capsular; 2, extracapsular; 5) were taken from group 1 and placed in group 2 due to fracture. Eight (8) cases of the 33 fractures of the hemiplegic side deteriorated in walking ability and one case of 6 fractures of the healthy side deteriorated.

Discussion

The results in terms of survival and ability to walk again are better than we expected. In cases of deteriorated walking ability, various factors indicated the need for an exercise program. At the time of admission, 6 of 39 cases had symptoms of dementia and one case of these deteriorated in walking ability. One of the 8 cases with incontinence or using diapers on admission, deteriorated in walking ability. Dementia, or incontinence alone, did not appear to be a factor of deterioration in walking ability. There were only 4 cases in which hemiplegia was the most serious factor for prolonging the time of this program. In these cases, muscle weakness and pes equinus disturbed their walking exercise. In other cases, deterioration due to disease of internal organs declined in motivation and knee pain seriously hindered participation.
Conclusion

We investigated 39 cases of femoral neck fracture in hemiplegic patients in Kumamoto Takumadai Hospital. There were 33 fractures on the hemiplegic side and 6 fractures on the healthy side.

Half of the fractures occurred within less than two years following the cerebral vascular attack. Deterioration in walking ability was observed in 9 cases. Seven of the 30 cases of independent gait before the fracture showed less ability to walk with a dependent gait. The prognosis in ambulation of femoral neck fractures of hemiplegic patients did not appear particularly serious.