Abstract number(828)

Cervical Spine Fracture in Patients with Diffuse Idiopathic Skeletal Hyperostosis: A Report of 7 Cases


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Fractures of the spine in diffuse idiopathic skeletal hyperostosis (DISH) have rarely been reported. Pre-existing DISH causes adjacent intervertebral stability and mechanical power to concentrate on fractured parts, which cause the fractured parts to become pseudarthrosis easily and difficult to control with an external brace. The DISH patients may render high neurological risk after spinal fracture.
【Purpose】

The purpose of this study was to examine type of fractures, level of injury, neurologic status, history of injury, operation method, surgical outcome, complications at our institution.
Materials and Methods

Pre-existing DISH and vertebral fractures through an area of ankylosed spine at the cervical level

Seven patients (three men: four women)
Operation: between 2013 and 2014
Mean age at surgery: 78 years (72-86 y)
Mean follow up: 17 months (11-24 m)

Plain radiographs, magnetic resonance images (MRI) and computerized tomographic scans (CT) were made for all seven patients
【Results】

Cervical fractures of all anterior, middle, and posterior column were identified on MRI and CT in all patients, but not on plain radiographs clearly in all patients.

All patients had healing of the fracture with anatomical alignment of the spine and without severe postoperative complications.
At the time of operation, the patients were positioned with great care in order to maintain the pre-injury cervical alignment.

Pedicle screw fixation was necessary in case of posterior fixation only. But in case of difficulty of use of pedicle screw fixation, we performed combined anterior and posterior reconstruction. Because only lateral mass screw in posterior fixation was not sufficient for vertebral stability.
# Table. Summary of cases

<table>
<thead>
<tr>
<th>Patient No.</th>
<th>Age(yr)/Sex</th>
<th>Injury Mechanism</th>
<th>ASIA Grade (Admission/ Follow-up)</th>
<th>Injury Level</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>73/M</td>
<td>GLF</td>
<td>A/A</td>
<td>C3,4,5</td>
<td>C2,3,4,6(PSF)</td>
</tr>
<tr>
<td>2</td>
<td>86/F</td>
<td>Fall down stairs</td>
<td>A/A</td>
<td>C6,7</td>
<td>C5,6,7,T1(PSF)</td>
</tr>
<tr>
<td>3</td>
<td>79/M</td>
<td>GLF</td>
<td>A/A</td>
<td>C6,7</td>
<td>C4,5,6-T1,2,3(PSF)</td>
</tr>
<tr>
<td>4</td>
<td>76/F</td>
<td>GLF</td>
<td>D/E</td>
<td>C5</td>
<td>C3,4-6,7(LMSF) C4,5,6(ACDF) C4-6 laminoplasty</td>
</tr>
<tr>
<td>5</td>
<td>88/F</td>
<td>GLF</td>
<td>B/C</td>
<td>C2</td>
<td>Occipito-C3,4,5,6(LMSF)</td>
</tr>
<tr>
<td>6</td>
<td>72/F</td>
<td>GLF</td>
<td>E/E</td>
<td>C7</td>
<td>C4,5,6(LMSF)-T1,2(PSF) C6,7,T1(ACDF)</td>
</tr>
<tr>
<td>7</td>
<td>75/M</td>
<td>GLF</td>
<td>D/D</td>
<td>C5,6</td>
<td>C4,5,6(LMSF)-C7(PSF) C5,6(ACDF)</td>
</tr>
</tbody>
</table>

ACDF, anterior cervical disectomy and fusion; ASIA, American Spinal Injury Association; GLF, ground level fall; LMSF, lateral mass screw fixation; PSF, pedicle screw fixation;
76y F  C5 injury

X-ray

CT

C 5
76y F  C5 injury
MRI
T1  T2
76y F
C5 injury

C3,4-6,7 (lateral mass screw fixation)
C4,5,6 (anterior cervical disectomy and fusion)
C4-6 laminoplasty
【Conclusions】
Treatment of cervical spine fracture in DISH requires hard fusion of the vertebral bodies as soon as possible.

Treatment of this rare injury should be early stabilization of the spine to avoid complications of nonunion, deformity, neurologic injury.

Early diagnosis and treatment are important and careful check up of MRI and CT is mandatory for DISH patients with persistent or severe cervical pain.
Disclosure declaration

None of the authors have any conflicts of interest with this study