STUDY OF LUMBAR CANAL STENOSIS AND THEIR COMPLICATIONS USING CONVENTIONAL MYELOGRAPHY VERSES CT MYELOGRAPHY

Medical Science

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ABSTRACT

Introduction: By weighing the advantages and disadvantages, it will be possible for one to plan the investigations in the victims with symptoms ranging from low backache to, low backache with bladder involvement which will prove to be specific and cost effective instead of subjecting the victims to multiple investigations. With this in mind the present study- comparative study conventional versus CT myelography in lumbar stenosis lesions was undertaken. AP diam. Less than 12 mm is considered canal stenosis , while less than 10 mm is considered absolute canal stenosis.

Materials and Methods: The present study included 80 patients who clinically presented with complaints ranging from low backache to paraplegia, with or without bladder involvement and who were clinically considered to have compressive myelopathy. All the above patients were subjected to conventional myelo graphic evaluation. Then the patient was subjected to CT scan evaluation of the lumbar spine by taking sequential sections on Spiral CT Scan unit.

Results: On Con myelography, 31 patients were thought to have single disc involvement, but in 3 out of 31 were detected to have L5-S1 disc involvement on CTM which were missed on Con. myelo

Conclusion : CT myelography proved to be far superior to conventional myelography as dimensions of the canal can be correctly measured. Hypertrophy of ligamentum flavum can be assessed. Involvement of apophyseal joints can be better noted. Assessment of the epidural fat can be better, done on CT myelography than on conventional myelography.

KEYWORDS:
Omnipaque (300mg Iodine/m1). Then the patient was subjected to CT scan evaluation of the lumbar spine by taking sequential sections on Spiral CT Scan unit (Somatome Plus 4-A Siemens make).

The CT scan examination of the lumbar spine (L-S) was performed by selecting 5mm thickness of a slices with 5mm feed. If required, slice thickness was reduced to 3mm. The gantry tilt was planned according to the level of lesion. Post processing of the images was done by using 3-D functions i.e. Multi-Planner Reconstruction (MPR) and Shaded Surface Display (SSD). The examination covered the adjoining area of the level of lesion, for example lower thoracic evaluation was carried out when the level of lesion was at L 1. The images were documented by using the KODAK Laser Camera by observing the protocol of 20 or 25 cuts on one film (14” x 17”) and in different windows.

After the myelographic and CT evaluation procedure were over the patient was hospitalized under the clinician’s care for post-myelography observation. The data collection was done and analysed using appropriate statistical method.

**Table No. 1 Observations regarding lumbar canal stenosis and their complications between conventional myelo and CT myelographic evaluation**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11 – 20</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>21 - 30</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>31 - 40</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>41 - 50</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>51 - 60</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>61 - 70</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>71 - 80</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 80</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>5</td>
<td>16</td>
</tr>
</tbody>
</table>

**Table No. 2 Radiological features in 16 patients presenting with lumbar canal stenosis and their complications between conventional myelo and CT myelographic evaluation**

<table>
<thead>
<tr>
<th>Radiological features</th>
<th>No. of cases</th>
<th>Detected on Con. Myelo</th>
<th>CT Myelo</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreased sagittal and transverse diameter</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>CTM better</td>
</tr>
<tr>
<td>Flattened thecal sac anteroposteriorly</td>
<td>12</td>
<td>10</td>
<td>12</td>
<td>CTM sensitive</td>
</tr>
<tr>
<td>Hypertrophic intervertebral joints</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>CTM better</td>
</tr>
<tr>
<td>Scarsity of epidural fat at inter-vertebral disc level</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>CTM sensitive</td>
</tr>
<tr>
<td>Ligamentum flavum hypertrophy</td>
<td>3</td>
<td>-</td>
<td>3</td>
<td>CTM sensitive &amp; specific</td>
</tr>
<tr>
<td>Lateral recesses depth &lt;4mm</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>CTM specific very specific</td>
</tr>
</tbody>
</table>

**LUMBAR CANAL STENOSIS**

Lumbar canal stenosis may be congenital or required or mixed, may be bony or soft tissue. In the present study, there were 16 patients of canal stenosis of 80 examined.

Maximum number of patients i.e. 6 were from the age group ranging between 31-40 years, 3 were in between 21-30 years, 3 between 41-50 years and 3 between 51-60 years. Only one case was detected in 11-20 years age group. It is observed that, the patients of lumbar canal stenosis commonly present in middle age. Degenerative changes which encroach upon the canal, which is already narrow, makes the patient present in middle age.

Male preponderance was seen in the present study (male-11 and female-5). Similar observations are noted by Robert H Dorwert et al. a

The radiological features were picked up in 100% of patients on CT myelography as against the less sensitivity of detection on conventional myelography.

16 patients detected to have decreased sagittal and transverse diameter on CT myelography, but same could be appreciated only in 15 patients on conventional myelography. CT myelography revealed 12 patients to have flattened thecal sac antero-posteriorly as against it was possible only in 10 patients on conventional myelography. CT myelography detected hypertrophic intervertebral joints in 5 patients while only 3 were detected on conventional myelography. Scarcity of epidural fat at inter-vertebral disc level was appreciated in 3 patients on CT myelography as against only one on conventional myelography.

The hypertrophy of ligamentum flavum and appreciation of decrease in depth of lateral recess to less than 4mm could be observed only on conventional myelography.

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