Relation between lumbar stenosis severity and redundant nerve root sign.

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Background

**Redundant nerve roots sign**

observed on myelography and MRIs in relation to myelographic blocks and lumbar spinal stenosis (LSS)

rootlets coiled in tress manner

rootlets coiled in serpentine manner
**Background**

**Aim**

- Study the relation of the presence of redundant roots in a cohort of patients with symptomatic LSS or low back pain (LBP)

- Degree of spinal stenosis as judged by the A to D morphological grade

- Relation between the above mentioned sign and likelihood of failure of conservative measures in symptomatic LSS patients.
Patients and Methods

Patients:

144 patients divided in three groups

- 42 LSS conservatively treated patients
- 75 surgically treated LSS patients
- 27 LBP subjects used as control

Primary outcome measure and analysis:

- presence of redundant nerve roots related to spinal stenosis morphology grade (A= no stenosis, D= extreme stenosis) from L1-S1 as observed on T2 MRI images.
- Patients with vascular claudication hip arthritis and previous back surgery were excluded.
- Statistical analysis included Chi$^2$ trend test and odds ratio.
A positive redundant root sign:

- 1 of 27 patients of the LPB group,
- 9 of 41 in the LSS non surgical group,
- 24 of 72 patients in the LSS surgical group,
(P=0.0022).

Presence of redundant root sign in relation to number of severe and extreme stenosis levels (grades C and D) was as follows:

- no C or D morphology grade: 2 patients of 47 (4%),
- one C or D morphology grade: 16 of 56 (29%),
- two C or D morphology grades: 8 of 23 (35%),
- three C or D morphology grades: 7 of 10 (70%),
- four C or D morphology grades: 2 of 4 (50%),
(P<0.0001).
Conclusion

- single and multilevel stenosis patients demonstrated a positive redundant root sign,
- multilevel stenosis patients with higher frequency of redundant root sign,
- patients demonstrating this sign were also more likely to fail conservative measures,
- redundant roots can serve therefore as a predictor of outcome in LSS patients.
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